

# The Mining Journal

## RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 845.—Vol. XXI.]

LONDON, SATURDAY, NOVEMBER 1, 1851.

[PRICE 6D.]

**MINING PROPERTY**, situated in the parish of LLANIDLOES, in the county of MONTGOMERY, NORTH WALES.

**TO BE SOLD, BY AUCTION, on Tuesday, the 4th of Nov.,**  
the MACHINERY, MATERIALS, FURNITURE, and EFFECTS of the  
**MONTGOMERY LEAD AND COPPER MINE,**  
(formerly Nantmelyn).

COMPRISING

1 48-ft. wheel	1 door piece and windbore
2 balance bobs	130 fms. capstan rope
1 main ditto	3 ligning butchies
300 fms. flat iron rods	2 biddles
1 30-ft. wheel and cranking mill	1 iron machine kibble
10 fms. 9-inch pumps	200 fms. tram rails
10 fms. 8-in. ditto	30 fms. ladders
1 working barrel	4 tram waggons
1 capstan and shears	1 stamps axle

and a large quantity of materials, smiths' tools, &c. &c.

Application to view the mine, &c., to be made to Capt. Michael Barbary, Plynlimmon, Blyth, South Wales.

For further information and particulars, communications to be addressed to Mr. J. N. Edwards, the Secretary, at the offices, 9, St. Michael's-alley, Cornhill, London.

October 17, 1851.

**TO ENGINEERS, FOUNDERS, STEAM-SHIP BUILDERS, AND OTHERS.**

**TO BE SOLD, BY PRIVATE CONTRACT, on very advantageous terms to a purchaser, the proprietor retiring from the business, the**  
**NORTH FLEET IRON-WORKS,**

situate on the banks of the Thames, about 20 miles from London-bridge, and within a few minutes walk of the North Kent Railway, by means of which the City may be reached in one hour, constantly throughout the day.

The BUILDINGS have been most substantially erected, principally within the last three years, and are planned with much judgment.

A PIER has been also BUILT, extending into the River, and a WHARF constructed, FORMING a DOCK, in which vessels of considerable tonnage may lie, affording facility for fitting or repairing marine engines or boilers, or for loading or unloading goods, for which purpose a PAIR of SHEAR LEGS has been erected, capable of lifting 25 tons; also a 10-ton WHARF CRANE.

The buildings comprise a TURNERY, fitted with self-acting screw-cutting, turning, boring and surfacing lathes, drilling machines, shaping and screw-cutting machines, planing machines, and steam arm, punching and shearing machine, principally by Whitworth, Collier and Smith, Beacock and Tannett; high-pressure STEAM-ENGINE, and in an adjoining building two steam-boilers.

A lofty ERECTING SHOP, with a 20-ton overhead travelling CRANE, boiler-makers and smiths' shops, with forges, furnaces, set of bending rolls and plates, cranes, and all requisite tools.

A commodious FOUNDRY, with four cupolas, patent fan, high-pressure STEAM-ENGINE and BOILER, a powerful crane, drying stove, and all usual appendages, pattern-makers' shop, copper-smiths' shop, draughtsman's office, counting-house, coach house, stabling, loam shed, iron stores, and store-rooms.

A spacious YARD, with triangles and crab, with gateway entrance. The whole establishment occupying a site of about one acre.

The premises are held for a long term, at a nominal ground-rent.

The machinery and tools are nearly new, and by the best makers. The supply of water is unlimited; coals can be procured at 9s. per ton, and the general arrangements and substantial character of the buildings combine to render this establishment most desirable to any person who may wish to commence business as an engineer, or to join the branch of marine engine manufacture to a business already established.

Further particulars may be obtained on application to Messrs. Fuller & Horsey, No. 13, Billiter-street, London.

CARMARTHENSHIRE.

**TO BE IMMEDIATELY SOLD, THREE SMALL FARMS,**

in the upper division of the parish of BETWYS, and upon the alignment of the Llanelly Railway, and containing about 112 acres of land, together with

**FOUR VEINS OF VALUABLE ANTHRACITE COALS,**

one of them about 6 feet thick; also with ONE VEIN of IRON ORE, called the BLACK-BAND, about 15 inches thick, with several OTHER STRATA of the COMMON IRON-STONE of the country.

And also TO BE LET, in the same parish, for a long term of years, several VEINS of ANTHRACITE COALS, and TWO VEINS of the IRON ORE called the BLACK-BAND, one of them being about 15 or 16 in. thick, with several other VEINS of the COMMON IRON-STONE of the country, on the MAESYGNARRE ESTATE, containing about 300 acres of land, also being on the alignment of the Llanelly Railway.

For further particulars apply at the office of Mr. Evan Hopkins, No. 13, Austinfriars, London.

Only principals need apply.

**TO MINE PROPRIETORS.—TO BE SOLD, at TOMAN-**

**TOUL, BANFFSHIRE, a very superior CRUSHING MILL;** the water-wheel is entirely of cast-iron, 24-feet diameter, 4-feet breast, and overshoot. The spur wheel is 7 feet diameter, and with the axle, pulleys, &c., very strong, and capable of driving any additional machinery the water-wheel can propel. The crushing cylinders are 24 feet long, the upper pair 2 feet diameter, and the lower 20 inches. The framing is strong, and of the best rock elm. Compound levers are attached to each pair of cylinders, affording any power that may be required at will. The machinery is of the best quality as to materials, strength, and workmanship; and, being under cover, is as good as when set up, having never required any repairs. The machinery may be shipped at Kingsport, Garmouth, or Port Gordon, on the Moray Frith, to which there are good roads.

Applications for purchase may be made to James Burgess, mining engineer, 49, Cumberland-row, Newcastle-on-Tyne.

**COAL TO BE SOLD OR LET.—About ONE HUNDRED**

**ACRES of the PONTYVAITH-YR-HARN VEIN of COAL at the ARGOED, in the**

**SIRHOWEY VALLEY, about 164 miles from the flourishing port of Newport, is**

**TO BE SOLD, OR LET ON LEASE, for any required number of years, at a very low**

**royalty or galeage. This coal is about 100 yards deep from the Sirhowy tramroad. The**

**vein is from 3 feet to 4 feet thick, of excellent quality for household use, and the small of it is admitted to be the best in the South Wales basin for the use of blacksmiths.**

A large tract of coal adjoins, and may be had upon reasonable terms.

For further particulars, or to treat for the same, apply to the Rev. J. Yorath, Stowhill, or to Mr. John Williams, auctioneer, 3, Clifton-place, Newport.—Oct. 21, 1851.

**HENDREFORGAN COLLIERY, GLAMORGANSHIRE.**

**TO BE LET, for a term of years, all the valuable and well-known SEAMS of**

**ANTHRACITE COAL, IRONSTONE, and BLACKBAND, under the HENDREFORGAN**

**FARM, in the parish of LLANGUICK, in the county of GLAMORGAN, which com-**

**prises ONE HUNDRED ACRES of LAND, and is situated within two miles of the Swansea**

**Canal, to which there is communication by railroad, and within twelve miles of the**

**port of Swansea.**

The property contains the Little Vein, 3 feet thick, celebrated for the manufacturing of anthracite iron; the Big Vein, 5 feet thick; the Welford Vein, 3 feet thick; and the Three Coal Vein, 3 feet thick—all of which have been proved; and also all the SEAMS or BANDS of IRONSTONE, BLACKBAND (17 inches thick), on the north crop of the basin, some of which have been lately worked by the proprietor, and are now in a state for immediate operations. The coal is well-known in the London and other markets as Cox's Stone Coal.

Further particulars to be had of Mr. M. G. Steward, mining engineer, Bedminster, Bristol; of the proprietor, Mr. Evan Jones, on the property; or at the office of Mr. Alex. Cuthbertson, solicitor, Neath.

**BICKFORD'S PATENT SAFETY FUSE.—The Patentees**

**of the ORIGINAL, and only real, SAFETY FUSE, beg to inform Merchants,**

**Agents, Railway Contractors, and all persons concerned in Blasting Operations,**

**that, for the purpose of protecting the public in the use of a genuine article, the PATENT**

**SAFETY FUSE has now a thread wrought into its centre, which being patent right, in-**

**stantly distinguishes it from all imitations, and ensures the continuity of the gunpowder.**

The Safety Fuse is now protected by a Second Patent, and manufactured by greatly im-

proved machinery.

BICKFORD, SMITH, DAVEY, Camborne, Cornwall.

**TESTIMONIAL TO MICHAEL WILLIAMS, Esq.—**

The Committee beg to announce that subscriptions may be paid to the East Corn-

wall Bank, at Liskeard and Bodmin; the Cornish Bank, Truro, Redruth, and Falmouth; Messrs. Bolitho, bankers, Penzance and St. Ives; Mr. Carne's Bank, Penzance; or to

either of the following gentlemen—viz.: Mr. H. Grylls (the Treasurer), Redruth; Mr. R. Jones, Penzance; Mr. S. James, St. Just; Mr. R. H. Michell, Marazion; Capt. Thomas Richards, Fowndry House, Hayle; Mr. E. H. Pike, Camborne; Mr. W. Burgess, Illogan; Mr. Pryor, Tow-chall, Redruth; Mr. Little, Redruth; Mr. E. H. Hawke, Tregulga, St. Day; Mr. H. Pearce, Royal Hotel, Truro; Mr. R. E. Broad, Falmouth; Mr. J. Morcom, St. Austell; and Mr. Field, Mining Exchange, London.

No subscription to exceed Five Shillings. Any smaller sum will be received. The list to be closed on the 29th November.

Redruth, Oct. 9, 1851.

THOMAS GARLAND, Hon. Secretary to the Committee.

**ASSAY OFFICE AND LABORATORY, 23, HAWLEY-**

**ROAD, KENTISH TOWN—conducted by Mr. MITCHELL, F.G.S., author of**

**"Manual of Practical Assaying," &c.—Mr. MITCHELL begs to inform the Mining and**

**Manufacturing Public, and Bullion and Metal Brokers generally, that he continues to**

**conduct ASSAYS and ANALYSES of MINERALS, METALS, SOILS, and FURNACE**

**and all other MANUFACTURING PRODUCTS.—ADVICE to PATENTEES and MAN-**

**UFACTURERS on all MATTERS involving a knowledge of Chemistry.**

INSTRUCTION, as usual, in ASSAYING, ANALYSIS, and METALLURGICAL and MANUFACTURING CHEMISTRY.—23, Hawley-road, Kentish Town.

**MR. JAMES CROFTS, of 4, KING-STREET, CHEAPSIDE,**  
MINING BROKER, OFFERS his best SERVICES to CAPITALISTS for the PURCHASE or SALE of MINING SHARES, and transacts business only for principals.

Mr. Crofts has FOR SALE SHARES in the following MINES:—Wheal Brewer, Trevaun, Silver Valley, Wheal Golden, Brondyod, Wheal Zion, Okel Tor, South Tamar, East Tamar, Bodmin Consols, Warleggan, North Fowey Consols, Calstock Consols, Wheal Lovell, Augusta, West Wheal Virgin, West Phoenix, Spearne Consols, Hingston Down, Wheal Tremayne, Devon and Courtenay, East Wheal Reeth, Tary Consols, Kingscott and Bedford, Wheal Williams, Boringdon Park, East Boringdon, Calstock United, &c., and can PROCURE or SELL SHARES in all DIVIDEND MINES.

\* \* Mr. Crofts is a BUYER of LAMHEROE WHEAL MARIA.

The increased capital thrown into the market by the payment of the last quarter's dividends and Government Stocks, having produced a considerable movement in mining shares, early purchases, in order to avail of moderate prices, are recommended. Mr. Crofts will (confidentially) give an opinion of the value of any mine within his knowledge, either personally or by letter.—Dated Nov. 1, 1851.

**MR. EVAN HOPKINS, C.E., F.G.S.,**  
MINING RECORD OFFICE.—13, AUSTINFRIARS, LONDON.

MR. HOPKINS'S OFFICE is SUPPLIED with PLANS and SECTIONS of the principal MINES in the UNITED KINGDOM.—The REPORTS, and all essential particulars, are faithfully and regularly RECORDED; those, together with possessing a thorough practical knowledge of the business in all its details, and being ENTIRELY FREE FROM SHARE DEALING, renders the office a proper, and as yet the only, place where DISINTERESTED INFORMATION can be OBTAINED.

The object of the office is to communicate information on all subjects connected with General Science—on Mineral Properties in all parts of the world—to protect legitimate Mining—to see Justice done to the Capitalists and Property, and to point out the necessity of placing such speculations in the hands of responsible business men. Capitalists, will, therefore, have themselves to blame, if they allow their property or capital to be wasted by jobbing and inefficient managers.

\* \* Annual clients are regularly supplied with every information that may be required on home and foreign speculations.

GENERAL MINING OFFICES, 23, Threadneedle-street, London.

**MR. JOSEPH JAMES REYNOLDS, late of CAMBORNE,**

CORNWALL, begs to inform his friends and the public that he has COMMENCED BUSINESS as a MINING and GENERAL AGENT at the above office, and

trusts, by paying a due regard to the welfare of his clients, that he will at all times merit their confidence. Having been connected with the management of mines in the most

productive districts of Cornwall upwards of twenty years, and being in communication with some of the most respectable agents in the mining districts, Mr. Reynolds will be enabled at all times to furnish such information as may be relied on.

Mr. REYNOLDS has SHARES FOR SALE in the following MINES:—Black Craig and Craigton, Bargally, Bodmin Consols, Calstock Consols, Cook's Kitchen, Daren, East Caradon, East Wheal Frances, East Pool, East Wheal Rashleigh, Great Wheal Badden, Great Sheba Consols, North Pool, North Fowey Consols, North Tolgus, Okel Tor, Pen-darves and St. Aubyn, Rocks and Treverbyn, South Fowey Consols, South Condurrow, Sydney Godolphin, South Phoenix, Trebell Consols, West Stray Park, Wheal Emma, Wheal Lovell, Wheal Susan, Wheal Unity.

And is a BUYER in West Providence, Alfred Consols, and West Ding-Dong.

J. J. REYNOLDS will carry on business upon COMMISSION ONLY, making no inter-

mediate price between buyers and sellers, and will be ready at all times to introduce the buyer and seller of any shares to each other.—Office hours Ten to Four.

**MESSRS. FRANCIS & CO., in order to avoid the complicated**

**and indefinite system of CALLS for working or proving mines, consider that a**

**better and more satisfactory one will be found in offering the public those chiefly in**

**which the machinery and underground work required to bring them into a state of profit**

**has been completed and paid for.**

In mines thus far advanced, it will be obvious that as there will be no risk, so there can be no necessity for calls—the speculative part of the adventure having been gone through; and in this way capitalists will be enabled to invest with the certainty of immediate returns.

Mr. MATTHEW FRANCIS takes leave to announce, that he has several THOUSANDS of POUNDS WORTH of SHARES to DISPOSE OF, which, at the selling price, give a profit of from £20 to £400 per cent.

\* \* \* \* \* Office No. 7, John-street, Adelphi, London.

**MESSRS. FRANCIS & LIGHTOLLER, MINING AGENTS**

**AND CIVIL ENGINEERS.**

OFFICE.—No. 34, EXCHANGE ARCADE, MANCHESTER.

Messrs. FRANCIS and LIGHTOLLER, may be CONSULTED by MINING COMPANIES or OTHER PARTIES requiring INSPECTIONS and REPORTS on MINES or

every description, or by CAPITALISTS and OTHERS desirous of INVESTING their CAPITAL in MINES or other MINERAL PROPERTIES.

Statistics and other general information connected with Mines and the Mineral Districts given or obtained with the utmost dispatch.

Capt. Absalom Francis having had upwards of 30 years' experience in the practical management of mines, and reported on most of the principal ones in the United Kingdom, applicants may rest assured they will receive full and satisfactory information on matters connected with mining.

Arbitrators, and contractors for the erection of engines and every description of mining machinery.

**MR. JOHN PHILLIPS, MINERAL SURVEYOR**

**OF SOUTH AUSTRALIA, after three years' residence and two years' exploration**

**in the colony, RESERVES his EXPERIENCE for BRITISH CAPITAL: awaiting the**

**result of this advertisement in a suitable remuneration for past time and future services.**

**MINING INVESTMENT.—T. FULLER AND CO., No. 51,**

**THREADNEEDLE-STREET, LONDON, beg respectfully to inform the public**

**that they are in a position to BUY and SELL in all the DIVIDEND-PAYING MINES,**

**which upon present purchase will pay from 15 to 25 per cent., and have on hand Bedford**

**United, Devon Great Consols, Mary Ann, Trevelyan, West Caradon, Great Wheal Friend-**

**ship and Vinton, Boringdon Park, Wheal Catherine, Franco, Zion. Also shares in**

**Wheal Williams—this is a continuation of the Devon Great Consols, and embracing**

**several of the same lodes; also Devon Consols North—this adjoins the latter, which, with**

**£1 paid, are marketable at £300, and paying £48 per annum in dividends.—Every in-**

**formation given, either personally or by letter.—Office hours from Ten to Four.**

\* \* \* \* \* Offices of the Wheal Langford and Baring United Mining Company, and Trebell Consols Mining Company, No. 34, Threadneedle-street.

**MINING OFFICES.—ST. MICHAEL'S CHAMBERS,**

**ST. MICHAEL'S-ALLEY, CORNHILL, LONDON.**

MR. R. TRIPP has for SELL the best DIVIDEND MINES, which, at the present depressed market value, will give to the purchaser 15 p. ct. and upwards—including Devon Great Consols, West Providence, Tremayne, Mary Ann, Spearne Consols, Wheal Reeth, South Tolgus, Stray Park, South Caradon, West Caradon, Alfred Consols, Bedford United, Wheal Golden, Trevelyan and Barrier, North Pool, Tincroft, Lewis, &c. &c.

Also in the following, having present and prospective advantages:—West Alfred Consols, Great Alfred, East Wheal Margaret, Wheal Arthur, East Tamar, Langford, East Russell, East Wheal Reeth, Lelant Consols, Treville, Balnoon Consols, South Tamar, Hencock (lead), Devon and Courtenay, West Russell, North Buller—Linares, St. John del Rey, Copiapo, &c.

**SHARES are TO BE SOLD in the following MINES,**

**VESELS, &c.**

Levant

Wheal Reeth

Balloon

Wheal Margaret

Barque LEGERDEMAIN

TELL TALE

CHARLOTTE ANNE

Also SHARES in the CORNWALL FISHERY COMPANY, ST. IVES.

B. P. BATTEN, 1, Crown-court, Old Broad-street, London.

**REGISTRY FOR THE SALE AND PURCHASE**

**OF MINING SHARES.**

DURRANT & CO., MINING SHAREBROKERS, 38, LOMBARD-STREET, LONDON.

Beg to draw the attention of Capitalists to their REGISTRY for the SALE and PUR-

CHASE of SHARES.

SHARES FOR DISPOSAL.

Devon Great Consols

Carn Breva

West Caradon

Trevelyan

Wheal Mary Ann

Wheal Reeth

Wheal Henry

**MR. T. P. THOMAS, MINE AGENT, 75, OLD BROAD-**  
STREET.—Established nine years.—Mr. T. P. THOMAS begs to inform capi-

talists and the public that he is at all times in a position to BUY or SELL, at close market prices, in dividend and respectably established BRITISH and FOREIGN MINES; and having a local knowledge of the principal Cornish and Welsh Mines, from periodical personal inspection, &c., will be happy to furnish information by post or otherwise.

N.B.—Mines inspected and reports furnished.

**MINING PROPERTY.—Mr. HERRON has SHARES in**

**the best DIVIDEND-PAYING MINES FOR SALE, and which will give the**

**purchaser 15 to 20 per cent. for the outlay. Amongst others are the following:—**

Lewis

Devon Great Consols

Trevelyan

Tremayne

South Tolgus

Byrnatell

Cobro

St. John del Rey

Condurrow

West Providence

Alfred Consols

Trevelyan

Levant

East Wheal Rose

West Caradon

Mary Ann

Wheal Margaret

Botallack

And has also FOR SALE SHARES in MINES having a PROMISING APPEARANCE, and affording greater range for speculation, such as—

Garrig

West Towan

East Wheal Reeth

Kilbricken

Mining Offices, 33, Clement's-lane, Lombard-street.

**MINING RECORD OFFICE, 26, AUSTINFRIARS, LONDON.—**

MR. MANUEL'S OFFICES are expressly for the USE of COMMITTEES and

COMPANIES conducting their BUSINESS in LONDON, and is entirely free from share-

dealing. MR. MANUEL will be happy to CONDUCT the LONDON AGENCY of any

MINES now at work, or about to be worked, he having spacious and convenient OFFICES

for that PURPOSE.—Terms on which the business is conducted to be had on application,

either by letter or in person.

Sixteen years' experience will enable Mr. Manuel to give suitable advice on all occa-

sions.—Offices of the West Wheal Rose, West Callington, Busparvo, &c.

**MR. THOMAS JORDAN, METAL BROKER,**

**No. 75, OLD BROAD-STREET, CITY, exclusive AGENT for one of the BEST**

**MAKERS of HAMMERED IRON, for MARINE, LOCOMOTIVE, and other ENGINES.**

Also AGENT for the SALE of SOUTH STAFFORDSHIRE and WELSH BAR, BOLT

and BOILER PLATE IRON, in all its varieties.

The Proprietors of Lead and Copper Mines in Devon, Cornwall, Wales, &c., will find

great advantage in the quality and cheapness of the Iron they require, by seeking quo-

tations through the Advertiser.

**MR. ALFRED SENIOR MERRY, DEALER IN COBALT**

**AND NICKEL ORES, AND ASSAYER IN GENERAL.—Address:—**

**LEE-CRESCENT, BIRMINGHAM.**

**MR. THOMAS EDINGTON (late Senior Partner of the**

**Phoenix Iron-Works, Glasgow), INSPECTOR of RAILWAY BARS and**

**CASTINGS, No. 17, GORDON-STREET, GLASGOW.**

AGENT for the PURCHASE of Scotch Pig-Iron, Railway and Bar Iron, and Castings.

AGENT for the SALE of English Boiler-plates, Angle and Riv



## Original Correspondence.

## THE GERMAN SCHOOL OF GEOLOGY.—No. VI.

BY DAVID MURPHY, ESQ.

Now, I would ask how all these solid bodies of rock, no insignificant part of the primitive formation—sometimes interposed or interstratified, without the least respect to the laws of gravitation, quartz on the top of felspar, and felspar on the top of quartz—came to be separated from the fused mass by the process of small spheres? Sometimes they range side by side, more or less vertical—their planes springing upward into the mountain, and shooting down into the deep, as if their boundaries had been struck out with a line. It is not said when the roof of the crystal palace of the sun was blown off whether any glaciers accompanied it. It is probable, because the vapour of the component parts of a man are just as likely to cool off into life as the more complicated vapours of the earth into its present terrestrial body; and it is only a glazier and a rule that could have cut such lines in glass, little as the masses resemble concrete vapour. Rounded hills of what is called horn-blendic clay-slate will present sections of concentric beds, lying as on a nucleus, crystallised from face to face of the lamina, resembling exactly the section of a mass of hematite on a gigantic scale. Here, then, are crystals several feet in length in an admitted aqueous rock. In fact, I defy any person to go over a tract of primitive formations, and point out the line of demarcation, putting his finger on the place where he can say here fire ended, and here water began. That the agglomeration of particles should be larger in a large mass is a legitimate supposition; but fire is not required to constitute bulk. A watery paste is just as large as a fiery paste of the same dimensions; but I must entirely demur to the necessity of either melting or dissolving 300 billions of cubic miles of matter in order to form crystals of felspar a few quarters of an inch in length. Such a gigantic provision seems beyond even the bombast of Sterne's wig, the barber, and the ocean. Could we trace crystals of felspar plunging into the earth behind St. Paul's, and one apex coming out in the Harz Mountains, and another in the Great Desert—a network of crystals forming the surface, and the mountains the points of prisms—such extravagance might be listened to. Crystals, 100 times the bulk of ordinary felspar, are made in a common evaporating pan. Indeed, I doubt not Mr. Faber has seen some this summer rather larger than his best specimens. The real state of the case is that the granitic rocks do not, in fact, deserve the title of crystalline, so pre-eminently applied to them; it misleads. It is the contrast of colours enabling us to trace distinctly the boundary of each crystal that has actually procured them the appellation. The difference is more apparent than real—abundance of sedimentary rocks of a uniform colour being equally crystalline. It may save the theorists immense trouble if they will take this peculiarity fairly into consideration and make comparison; they may then cease the infinitesimal search for porphyry in bottle glass, and need no longer melt mountains for a mouse of felspar. That the earlier depositions should present more distinction of parts than their subsequent detritus is natural. The crystallisation formed from the original base, paste, or solution, must be more definite in its components than that re-compounded from a wreck of the whole. All the conditions were different. Two marked features may be gathered by examination. First, that these rocks, in the period of deposition, were less exposed to atmospheric oxidation than the sedimentary strata. The presence of the magnetic protoxide of iron is one proof of this. The second clear feature is that they became consolidated under immense aqueous pressure, enduring far longer than any submarine depression of the later measures. The arrangement of the crystals of granite exhibits considerable freedom of motion, *inter se*—sometimes balancing here and there, as if undisturbed, like the shoots crystallising in a still medium; sometimes following in one direction, as under the influence of a current. This is the structure of metallic rocks, characterised by observing miners as a "lively grain." Whether the presence of the metals caused the current, or the force of the current otherwise caused, brought on the metals, we do not know, but their co-existence is clear. Besides this mobility under magnetic influence, the particles exhibit a great softness, obvious to physical pressure after their present condition was completed. The lamination of the softer parts, pressed up against their harder neighbours, which may have had a better footing on whatever exists beneath, twisted and contorted like a bunch of fibres, included crystals following in the direction, and proving the whole structure to have remained in a pasty state, subsequent to its being formed.

As to strata being "disturbed and turned topsy-turvy" by igneous action, it is impossible on his own grounds there could have been such an effect, because Mr. Faber admits no gases into the body of the earth. As to the crust cracking and falling into the molten interior, of course he is not in earnest in such a nursery tale, or he would point out some of these awful gaps. They are the desperate necessities into which theorists plunge, hurried down by a blind oblivion of facts. Earthquakes are connected with volcanoes, which form eminences, not depressions. Slight undulations of the moist base as it travelled northward, composed of harder and softer portions, are fully adequate to explain the insignificant inequalities of the surface of the earth, compared to its bulk. I would ask again must we have melted centres and tumbling crusts to account for the rugged bark of a tree? The undulations are now probably less than formerly. The land is pretty well wedged round the North Pole, and may have grown more rigid, like the bones of an old man, and, therefore, not so sportive as in younger days. The oxidation of earths or metals in the sub-surface of the earth, beneath the cortical crust, is more likely to raise the exterior than the tumbling in of great cracked continents—a desperate business, considering the depressions are the ocean; or was it the weight of the sea which actually crushed in the then crust, leaving a few ridges and tracts, as we behold in the four quarters of the globe? It must have been no theory to the fishes; but perhaps then, as now, the same agency which keeps water in molten mica and felspar, preserves the bottom of the sea from boiling. On this part of the subject I will ask only one further question. When the heat was sufficiently reduced, to enable the silicious earthy crust to congeal and crystallise, which of the metals, or other substances, formed the dense vapour, which we are told at that time loaded the atmosphere?

The next point in Mr. Faber's reply is the instance of crystalline limestone, of which he suggests my taking the benefit. I have already dwelt so much upon the absolute and notorious identity of crystalline character in all known rocks, whether primary or secondary, that I need say less to this suggestion. There is no difference between granite, limestone, or sandstone in this respect. All have more or less a crystalline structure, modified in degree by circumstances, and are equally interspersed with perfect crystals of insoluble minerals. The theory of "metamorphic rocks"—the boiling of limestone into crystals—is, therefore, equally superfluous and phantastic as the dogma of fused granite. But as Mr. Faber's remarks, if not an absolute denial of the aqueous solubility of carbonate of lime, make an extreme difficulty of one of the most notorious of facts, the deposition of lime from water, I must take a little notice of this paragraph. With the fact before us of perfect crystals of carbonate of lime found in rocks, where no boiling possibly can take place, and of stalactites crystallised in radii from the centre to the circumference, forming before our eyes, where no boiling, except that of a pic-nic tea-kettle, ever did take place. It is hard to be told the things we look at are impossible, because carbonate of lime is insoluble in water. It is exactly of a piece with the assertion, that the primitive silicious rocks cannot have been formed by water, because silic is insoluble, although we know that perfect crystals of quartz, which no one ever dreamed had been melted, are one of the commonest aqueous works of Nature. But as a theorist will believe no fact without a theory, I will endeavour to supply one without boiling the limestone—rather an awkward process after the commencement of marine life—in adjacent seas.

Mr. Faber himself intimates a sense of the true theory, but mentions it merely as an indifferent alternative to the boiling, with that singular insouciance to the physical effects of heat which characterises the salamander school. Beds of lime have two known origins; the one from marine organisms, the other by depositions from fresh water springs. The contents of the former tell their own tale; the latter, Mr. Hopkins states, he has seen proceeding under the tropics on an ample scale, the silicious ingesta of the water deposited in the lime in nodules, like the flint of our chalk. Such formations contain an excess of carbonic acid; they have not had time to become a crystalline rock by the magnetic influence, under enormous pressure, in the depths of an ocean. But there is no difficulty in conceiving how the older limestones, their pores saturated with water, under such pressure, and subjected to that magnetic stream which, as a marked property, crystallises all rocks, and is capable visibly of forming, by the aid of moisture, perfect crystals of carbonate of lime in measurable periods, should acquire the crystalline structure throughout their mass. A very small quantity of

organic remains is adequate to supply carbonic acid to surround every particle with a cement of soluble bi-carbonate, if that is needed, so that Mr. Faber has all his conditions fulfilled without lighting the fire. The lime, whose enormous accretions of animal matter ooze out in bituminous layers, is intensely crystallised. Its position high in the series, quite precludes the boiling process. It is known, that when streams of carbonic acid meet chalk they crystallise it; and there is no reason to suppose but that, by simulating natural conditions, and passing a magnetic current through a mass of pure chalk, insulated in water under high pressure, charged with carbonic acid gas, we might even, in a manageable space of time, convert it into Parian marble. But though our arrangements were to fail in effecting the change, that would no more be a proof against the natural facts, than our inability to make concentric rings of wood out of the elements of wood will disprove the growth of trees.

[To be concluded in next week's Mining Journal.]

## THE MINING SCHOOL.

Sir,—It is with pleasure I notice there is a move again on this interesting subject, and agree with your remarks generally on the utility of such schools; but it should be brought out something like the "Old Miners' plan," in your Journal of the 4th instant. They must be local schools, that come within the reach of even orphan practicals, and conducted by able practical teachers; otherwise they will not reduce mining to a science. Miners generally are intelligent and thinking men, and only want their ideas cultivated by daily lessons in good schools; and how can the young and active practicals be accommodated with it but from local schools, and near at hand, where they should be taught the rudiments of mineralogy, meteorology, chemistry, and geology, with a small laboratory attached, to give them an insight as to its practical working? To learn the earth's natural laws, they must be all but their own teachers. Those who are intelligent, and have strong intellectual powers, only want cultivating to sow the seed on; and then keep them in their proper climate, and it will grow to perfection. It is from these the public have to expect the development of Nature's laws. (See Capt. Thomas's interesting remarks last week.) Is there any sane man who can be led to believe that London, or even Truro, is the right and proper place for a school to learn the Cornish miner the natural laws of the earth? Let us suppose the school was established even at Truro, I ask who would attend it?—None but a few captains' sons, and the children of parents in more affluent circumstances, who could maintain them without working. In answer, we may be told that, after a time, they will be sent into the mine to practice. Now, I will just give you a specimen of these scholastics. Having had more than one captain's son, after their receiving a fair education, sent to me to learn mining, what was the result?—They left me to do three-fourths of the work, while they talked about the mine, hindering others, and introducing every vice amongst the workmen. In a few months they are full learned, placed in situations as captains, when the most illiterate thorough bred boy really knew more of mining than they did. I never found these men to excel in but one thing, and that was in getting up mines and prospectuses, &c., and going into the market to sell them. They tell the purchaser what the thorough-bred miner is ashamed to do; and this would be precisely the class that would come out from these schools. It would be going from bad to worse. At present, the majority of mine captains are what we may term *clerk* men, and uneducated. Notwithstanding, they are known as a body to be men of strong intellectual powers, and far superior to the school-taught agents, or the majority of the labouring miners. They only wanted cultivation in early days. In that case, we should not now have had these red-hot igneous theorists, whom we see so often running about, trumping up such a diabolical doctrine, and attempting from theory to lay down the natural laws of the earth for our guide; and when we chide them, they turn round and tell us that they are educated men, and have travelled. Then where did they travel?—why over the mountains of Russia, America, and Australia, and with a strange book of some igneous theorist in their hands; when they examined all the gold washings, and looked minutely into every igneous crack, and on their way in returning they visited a few mines in Germany, and then went over our coal-fields, where they saw all the timber of the anti-diluvian world beautifully converted into coals. From there they scampered off to Cornwall, and were conducted into about some half-dozen of mines, where they often became so timid as to require two or three to hold them. On their glancing into a pitch with the lode excavated, they were quite convinced that it originated from a crack on the cooling of the earth; and up they came, quite finished as practical miners, ready to undertake any situation that might offer, with a proviso that they were not called on to go underground too often.

These are just what we should have turned out from a London or Truro school; they would come down in swarms, with their theoretical boxes filled with igneous boluses, such as no sound practical man, who had minutely watched Nature's laws, would ever attempt to swallow, fearing they would burst.

I am right glad to see Mr. Mushet, Mr. Hopkins, and a few others making no noble stand against these igneous theorists, whose doctrine to practical men is based on no substance. I am at all times an advocate for education to men of every grade; it opens the way for the hard-working progressing Englishman. But let the groundwork be established on sound basis, and open to the poor and fatherless. Never allow it to be smuggled amongst the few; it would be returning again to our former bumbling days.

Sir C. Lemon attempted very nobly to carry out a Mining School, established at Truro; but the public quickly saw who would be the pupils, and it would be wholly in the hands of the moneyed few; it, therefore, fell to the ground unsupported. I sincerely believe that these schools will never be carried out advantageously for either miner or the public until Government takes the matter up, and combines them with the national schools, sending an able extra teacher to these schools, situated at fair distances in mining districts, and compelling lords and adventurers to pay a low per centage to their support. There should be a small library of useful books, and a school, and lectures on Saturday evenings. Masters visiting schools alternately to lecture, and to give practical lessons on chemistry. Most are aware that every boy sent to a school will not come out fit for the same particular calling, neither is there one in a hundred that excels; but it is to those that do excel that we have to look for the development of the wonderful workings of Nature. To obtain it, they must daily go through all the rough rudiments of mining, getting their school teaching either before or after these works. Saturdays should be wholly devoted to the school, until they attain a certain age. The fees of the school should be easy. The strong and able boys, who showed progress in arithmetic and measurement, &c., should be selected for the mining department; and young men allowed to attend at such hours as their labours would permit. I believe it must be something like this, and established on the spot, to introduce science in mining at railroad speed.

[To be concluded in next week's Journal.]

## PRACTICAL AND LEGITIMATE MINING.

Sir,—I have been frequently amused by reading some of the many letters that have appeared in your valuable Journal on this question, and have wondered why some one of my able brethren has not, long ere this, explained the simple question. Capt. John Spargo has nobly demanded what has been asked for many times—let the scientific geologists prove to the public their ability. But Capt. Spargo has not done all that should be required of him: he ought to have commented a little more on the subject, and explained the matter, for I know no one more capable. Few have had better practice, or can be more highly versed in the school of practical and legitimate mining, than Capt. Spargo; and if such men cannot satisfy the public mind on this head, it is useless for the mere theorist to pretend doing so, for in no one instance have they been known to benefit the public to the value of a swabbing stick. "K. C. M." has come up to the truth, that the discoveries are generally made by the working miner, but few of them are prepared to advance 30*l.* or 500*l.* to open the lodes, &c.; and supposing they were, what would that avail? What is 500*l.* going to do towards developing a mine (say) only 20 fms. deep, even if there should be no steam-power required? It is as likely to cost treble the sum. But I understood "Common Sense," at Tavistock, intended to suggest that a person taking up a sett for mining purposes should be graced with that perfection which belongs to the Great Creator, and to Him alone, just as those scientific pretenders did in the year 1849. Oh, what bright prospects were then held out to the mining adventurer! What flash reports were then about; mining was no longer to be a speculation; all was to be safe: only hand one of those worthless about 30*l.* for inspection, and we were to be informed at what place and at what depth we were to find the riches. But hitherto all their promises have proved fallacious; and now they pretend to assist the practical miner by new plans for excavating, and often the practical captain is obliged to give place to a mere novice, when he has painfully to see many things going wrong—wrong drivings, wrong sinkings, and many foolish notions about. I have proved this to be the case in more than 20 instances, and the adventurers had, and will have, to suffer: these are men of theory, not of practice. Now a few words on the letter of "Common Sense." How vague and absurd are his writings. First, the man, be he who he may, is to ascertain correctly the geological and mineralogical features of the sett. He next is to take his sublime survey of the subterranean part of that piece of the globe from 10, 20, 30, 50, 100, or 300 fms. deep. He is to have a clear insight of the nature of the ground, the character of the lodes, what mineral deposited therein, the cost of breaking, pitwork, powder, candles, steel, and other materials, together with the amount of machinery for pumping the water, and for crushing, dressing the ore, &c.; he is to assay the sample of the ores before broken! This is what is required by him; legitimate mining; so much for the advice of "Common Sense." I candidly appeal to the public to know what benefit they are to derive from such nonsense as this? We are all aware that mining is a speculation, and the mineral product is a hidden thing, and the best method for finding that mineral is by good systematic diggings and exploring. In the first place, identify the lodes in the sett by cutting across at right angles, then select the most eligible spot for the engine-shaft, if such be required. Let the pursuer be a man of integrity—the captain a man of science in his own branch of business; for I have ever found the practical, even if he cannot read a letter, to be possessed of more really scientific knowledge respecting his own business than all the geologists that ever existed. Let the shareholder, be he who he may, call on some of our working men, and glean all he can from them in a civil manner; then let him take a mere geologist, and he will find that if the miner cannot politely explain his ideas, he can give a more explicit explanation of the nature of the things required than all the geologists in the world. After these things are settled, make a sufficient call to provide for the necessary materials, and to employ a sufficient number of hands for excavating the shafts and levels that may be required for a speedy development of the lodes; for whoever attempts to work a mine with a limited cost or outlay per month, if the outlay is not kept to the mark, the operation will be a failure, and then much time and money will be lost. But if these things are judiciously attended to, it will be coming up to something like legitimate mining. How reverse, however, is mining governed now a-days. Very few agents can say that they are really

gents. No; they are obliged to take their instructions from some other powers, having as much knowledge of conducting the working department of a mine as his Royal Highness Prince Albert; and I have great reason to fear that many a good "bat" will be "knocked" through such means being employed. JOHN SEYMOUR.

## PRACTICAL AND THEORETICAL MINING.

Sir,—There are quacks in every profession—we find them from the lowest grade of mining to the highest degree of the science. There are some persons who are only employed to make reports for selling properties, and others for the object of guiding the workings. The mining community are getting weary of those who have been employed in furnishing reports without realising corresponding results, and begin to find the difference between real practical men, who have proved themselves by their deeds, during many years' experience, worthy of that name, and those who never have managed mining concerns in a creditable manner.

"Examples are better than precepts," therefore the prudent capitalist can only place confidence in the "doings," and not in the "sayings," of mining agents. I have been led to make the above remarks in consequence of a letter in your last Journal, signed by Capt. Spargo. I am extremely happy to find that he has learnt at length the truth of the above proverb, and I sincerely trust that he will in future act up to this principle in his present engagements, and that we shall shortly see actual results. Capt. Spargo had better attend to his own daily duties, and not trouble himself about the theorists and capitalists who choose to look after their own property without consulting him. They know the worst—they can but lose their money, which the so-called "practicals" have done for them in innumerable sets. Prudent men never agitate questions which may tend to convict themselves, unless they can bring forward some counterbalancing redeeming qualities. However, in order to guide mining capitalists, and give every man his due according to his merit, either in his judgment of ground, or as a manager of a mine, it has been suggested to make a table—say, from the year 1830 to the present time—showing the number of years of experience, actual management, and satisfactory results, in the different undertakings in which each mine agent may have been employed—the number of reports made, with their corresponding results, and thus place these important questions in such a manner as will enable the public to draw their own conclusions.—EVAN HOPKINS: Mining Record Office, Oct. 28.

## AGUA FRIA GOLD MINING COMPANY.

Sir,—I observe in the Notices to Correspondents, in your Journal of Saturday last, that inquiries have been made as to whether Mr. Palmer, of the house of Palmer, Cook, and Co., San Francisco, from whom the lease of the Agua Fria Mine is held, was the engineer of the Anglo-Californian Company, which was set on foot last year and failed.

It is not stated whence these inquiries have originated, nor of whom they were made. But had the inquiries been made of me, I could easily have explained that the person who professed to be the engineer of the Anglo-Californian Company called himself James Palmer, and that the name of the gentleman, who is at the head of the house of Palmer, Cook, and Co., bankers, of San Francisco, is Joseph C. Palmer, and has no connection whatever with the person styling himself engineer of the company in question.

Perhaps you will allow me to add, that if any of your readers would wish to ascertain whether the Agua Fria Gold Mining Company has a specific right to mine the locality in which its operations are about to be commenced, I shall have great pleasure in satisfying them on the subject, if they will favour me with a call at this office.—ALEXANDER BEATTIE: Old Broad-street, Oct. 31.

## TICKETING DINNERS.

Sir,—I have often wondered how the adventurers in mines could have borne so long as they have the excessive charges levied upon them by the copper smelters and their agents, in the shape of ticketing dinner bills. Why should not the smelters pay their own and their agents' travelling expenses? Do not the smelters derive an enormous profit from their business, whereas many of the mines can scarcely meet their working costs? It is well known that the smelting companies are extremely wealthy, owing to their business gains, and that their riches are rapidly accumulating; but if the adventurers were so liberal as to give a dinner to the cashier, and to pay 16*s.* to the assayer and sample-taker, that they may take theirs where they please, is it not rather imposing on the part of the latter to go beyond that allowance, and dine at the ticketing table, at the mine's expense, notwithstanding? If the advice of a friend to all men can be of any force, I would recommend the managers of mines to make a fresh arrangement with regard to these dinners, and to pay the expense merely of their own attendance, or that of their representatives. If, however, they are determined to pay for the accustomed dinners, let them protest against the excessive charges made by the innkeepers who furnish them. The copy of the dinner bill furnished in your last Journal shows that the ticketing dinner is a luxurious feast, and not a mere repast, such as the occasion may require: 32 dinners at 4*s.* 6*d.*, 22 bottles of wine at 6*s.*, besides 3*s.* in spirits, give an idea of no very temperate habits in the consumers. Then there is ale and porter, 1*l.* 3*s.* 6*d.*, and stationery, &c., 1*l.* 8*s.*! which I assert is more than the innkeeper pays for paper, pens, and ink, for a whole year. The other items, too, appear very high, but what I have named are the most objectionable, and call for a reform. I have no interest whatever in the matter; I write pro bono publico.

Mining Offices, Camborne, Oct. 28.

G. J. PHILLIPS.

[Our correspondent is wrong in asserting that 28*s.* is more than the innkeeper pays for stationery in one year, though, probably, it is double the real weekly expense; the Ticketing Lists are printed and ruled all ready for filling in, about three or four score papers, for which the printer charges, we are informed, 10*s.* 6*d.*]

## CONDURROW MINE.

Sir,—Before receiving your Journal, I was prepared for the communication of your correspondent respecting the conduct of the manager of the Condurrow Mine, at the last meeting, as the following extract of a letter from a very respectable London broker, dated the 24th October, will prove:—"Now, if you want to buy a Condurrow or two, I can get them for you: a party in town is trying to knock them down."—Nothing need be said with regard to the management or the manager, as the object of your correspondent is quite evident. As to the mine, it will stand on its own merits, and will bear inspection. Capt. Nicholas Vivian's name is proverbial for practical experience and strict integrity of principle, not only in Cornwall, but in many parts of Europe, wherever his eminent abilities have been called into requisition. J. GAMIS.

Fevril, Oct. 27.

## WHEEL ZION.

Sir,—I have no objection to hold myself responsible for my own reports, but I should be extremely sorry to be answerable for the representations made by other people, who, to suit their own interest, give a very different meaning even to written statements, and much more so when the observations are merely verbal. In your last week's Journal, I find in the Wheel Zion report my observations introduced in a manner that I cannot allow, inasmuch as they tend to misconstrue my opinion on the intrinsic worth of the sett, and the stuff which has been prepared for sampling. I ascertained the nature and quality of the present produce by "vanning," sufficiently near for any practical man to form an opinion of its value, and recommended that no more should be extracted, as it was principally mundic, coloured by black copper and pryan, tinged with the green carbonate; and also that all works should be suspended, excepting the main shaft, and the sinking of that to deeper levels, &c. More than this I need not state, and I regret to be obliged to say so much; but I cannot afford to lose that which has cost me many years' experience to obtain, and which I value more than wealth.

If the Wheel Zion Company have any desire to obtain a detailed and proper report, I shall be happy to furnish one, and, of course, stand to it: but I hope I shall not see my name used in such a manner in future. EVAN HOPKINS.

Mining Record-office, Oct. 30.

## STANDARD OF COPPER ORE—HOW TO CALCULATE IT.

Sir,—In the Mining Journal of the 20th Sept., there is a mistake in the calculations made by the party forwarding you the communication upon this subject; and as, doubtless, your object is that of being correct, especially on a point of such importance, I beg to send you the real state of the case. Supposing a parcel of copper ore to produce, by assay, 83, and be sold at a standard of 94*l.* 8*s.*, the result would be 8*l.* 5*s.* 2*d.*, less returning charges 2*l.* 15*s.*, leaving 5*l.* 10*s.* 2*d.* per ton as the value thereof. Your correspondent evidently made his error in adding up the sum 94*l.* 8*s.* by 83 as 836*l.*, which should be only 826*l.*, thus making 2*s.* per ton difference.—ARGUS (of Truro): Oct. 28.

## TROPIC OF THE SHARE MARKET.

Sir,—I am induced to notice the letter of "Spectator," under the above head, in your Journal of the 18th inst., which may have been merely intended as a soft persuader towards filling up shares in West Grenville; otherwise what has "Spectator" to do with "elvan end kills," as "demonstrative of torpor in the share market?" Conceiving this to be the "primary leverage" of your correspondent's letter, I proceed at once to two pages further on in your Journal, and there find the "torpor" represented in the following words: "A large accession of business has flowed into the mining market in the course of the present week, of which the principal part is still of the speculative description, and again absorbing a large amount of capital in premiums." The week preceding this, the report from the share market stated: "Considerable activity has prevailed in the market this week for speculative mines in particular." This was published to the world the very day prior to "Spectator" calling his puff! However, it is due to him to declare, and which I am endeavouring to do from communication with the pursers of a vast number of mines, that the boasted weekly dealings in shares are magnified to an almost unlimited extent. Not a week passes but "business has been represented as done" regularly in several mines, wherein no transfer of any share or shares has ever



been lodged with the purser for transfer upon the cost-book. In three or four mines (the account-day meetings of which are held every ninth week, during which nine times have shares been publicly stated as sold), when the shareholders meet, they find one solitary sale only had really been made, one transfer in out of nine so trumped forth, so that "Spectator" is in some measure correct in calling the market "torpid." As far as the cost-books are "proof" (and they ought to be the best evidence), there has not been one-eighth part of the "activity" announced. In dividend mines, sellers are to be found only when the price offered is somewhat beyond the apparent or conceived value of the ore discovered, value of stock, &c.; from one account meeting to another, in many of them, there has not been a single transfer of a share twice in one year. The same average holds good even in "speculative mines"—not one-eighth of the business pretended to be "done" in them appears upon the face of the respective cost-books. These facts are so generally known in the mining district, that I feel no hesitation in requesting you to insert this letter, which can be confirmed by the pursers and shareholders in many score instances, to the certain knowledge of—ARGUS (of Truro): Oct. 28.

#### CAMERON'S COALBROOK STEAM-COAL, AND SWANSEA AND LOUGHOR RAILWAY COMPANY.

A meeting of the shareholders of this company was convened at the George and Vulture Tavern, on Thursday last, by circular from Mr. Smallbone, one of the directors, for the discussion of a proposition on his part, as preliminary to submitting it to the approaching general meeting. A portion of the executive, and some 30 or 40 of the shareholders attended, who listened with great interest to the address of Mr. Smallbone, whose observations appeared to have considerable effect on all parties. It was certainly the best meeting that had been held for a long period.

Mr. SMALLBONE stated that about 2½ years ago some members, dissatisfied with the affairs, proposed to retire from the company on the condition of paying 8000*l.*, which was not paid to the company, but to Col. Cameron. That in September and October, 1849, two meetings were held at his (Mr. Smallbone's) suggestion, and a call of 4*l.* was thereon made, but not responded to. That several of the directors had made advances, and he had lent the company 500*l.*; but none of them had received payment, or interest, or remuneration. That the directors had made ineffectual application for voluntary contributions, to rescue the company from ruin. He represented that if the company were dissolved the shareholders would have to pay the debts—say, 25,000*l.*—and if wound-up in Chancery the amount to be paid would be 40,000*l.* Eminent legal advisers held that the succeeding shareholders were not exonerated; but the great evil of winding up was the total loss of the company's valuable property which must ensue. On the 31st May last an arrangement was made, and reported by the directors on the 28th July (given in our report of the Cameron meeting on the 2d of August last), which was a great concession by the Messrs. Cameron; but there was a provision in the deed, whereby, in case the company should be wound up, the entire of the Cameron's rights should revive, and the subsisting arrangement be cancelled.

The remedy he (Mr. Smallbone) would propose was as follows:—There are three parties to be considered—the landlord, the shareholders, and the creditors; the whole of these must combine. He proposed to dissolve the present company, and reconstitute it on the Cost-book Principle, in such manner as to remove present liability, and limit it for the future. The landlord must sanction this; the shareholders must concur in the transfer and the necessary conditions; and a compromise should be effected with the creditors, so as to secure them full remuneration for their claims. The only assets of the company were the interest in the Cameron lease—1300 acres of coal land, of which only a small portion had been worked; and this he put down at a value of 55,000*l.*, the original cost being 150,000*l.* This was proposed to be represented in 11,000 shares, 5*l.* paid up, the whole number of shares in the new company being 15,000. He proposed that the outgoing shareholders (holding 3553 shares) should, for their proportion of the 11,000 shares, pay up the difference between the sum of 8000*l.*, already paid by them, and the amount that would have been payable by them of the last 4*l.* call [14,212*l.*—8000*l.*=6212*l.*—say, 1*l.* 14*s.* 11*d.* per share], for which they would have 3553 new shares, subject to a further payment of 2*l.* per share, making the whole of their contribution 13,318*l.* The present members holding 2500 shares, who had paid the last 4*l.* call, should receive 2500 new shares, subject to the additional payment of 2*l.*, giving as their proportion 5000*l.*, which, with the former 5*l.*, would make 13,318*l.* Mr. Cameron holds 2000 shares, which are virtually Col. Cameron's, and on renouncing all other claims he will get 2000 new shares free. In offering the creditors a compromise, he would reserve for that purpose 2500; and those, with 447 for contingencies, would make 11,000. The remaining 4000 shares would be sold at par for 5*l.* each, and realise 20,000*l.*; a sum sufficient to open the Broad Oak vein, and yield a large profit. That operation would reduce the capital stock to 75,000*l.*; and, according to Mr. Atkinson, there would result a dividend of 9½ per cent. Thus the 5*l.* share received for 2*l.* will not only give a differential advantage of 3*l.*, but also, inasmuch as the old share was 1-20,000th part of the capital and the new one 1-15,000th, each of the new shares will be equivalent to 1½ of the old shares; and, consequently, there will be no depreciation of interest, but a positive gain in the commutation.

The liabilities of the present company might be stated as—debts (excluding claims for royalty), 18,440*l.*; salaries, rent, wages at Swansea, &c., 300*l.*; Mr. Elderton, 1000*l.*; interest and cost on debts, &c., 3500*l.*; landowners on Llanelly Railway, and contingencies, 2000*l.*—25,000*l.* The conditions of the arrangement were then stated—1. That the creditors should concur in the compromise to be submitted to them.—2. That Col. and Mr. Cameron abandon all claims to the present time, except the 2000 shares.—3. The outgoing shareholders should pay the balance of the 4*l.* call—say, 6212*l.*—4. Both classes of proprietors would have to pay 2*l.* additional to that call, for new shares as proposed.—5. That the petitioning shareholders withdraw the petition, or that it be strenuously opposed by the majority.—6. That the company be dissolved, and the lease transferred.—7. That a new company be constituted on the Cost-book Principle, with 15,000 shares, representing 75,000*l.*—8. And that to effectuate these dispositions the shareholders should be called upon to make the corresponding advances, including the additional 2*l.* per share.

Much complimentary discussion took place as to the satisfactory character of these suggestions, and thanks having, on the motion of Mr. STRELLY, been voted to Mr. Smallbone, further consideration and comment were postponed till the special general meeting to be held on Monday next.

#### WEST POLGOOTH MINING COMPANY.

A general meeting of shareholders was held at the offices, St. Helen's-place, Bishopsgate-street, on Wednesday, the 29th Oct.

Sir GEORGE E. HODGKINSON in the chair.

The circular convening the meeting, and the report of the committee of management, having been read, the accounts were examined, showing—Balance last meeting, 1052*l.*—Working cost from 15th April to 1st Sept., 274*l.* 1*s.* 6*d.*; preliminary expenses, 32*l.* 10*s.* 6*d.*; expenses visiting mine, including Messrs. Dean and Murray's reports, 20*l.*; office expenses, including petty cash, &c., 14*l.* 9*s.*; showing a balance at bankers, 710*l.* 19*s.*

#### REPORT OF THE COMMITTEE.

Your committee, referring to their report of the 18th July last, beg now to state to the shareholders the progress that has been made in developing the mine, and the success attendant thereon. Your committee refer to the various reports received from Captain Rickard, and to solicit the attentive perusal of the shareholders thereto, as they will disclose the discovery of rich tin ground, with the prospect of further improvement as the mine is worked to deeper levels. The reports of Captain Rickard were deemed by your committee of sufficient importance to warrant them in deputing a member of their board to pay a visit of inspection to the mine; and accordingly a member of the board, on the 11th October, visited and made an inspection of the mine, and was accompanied by Messrs. Dean and Murray, who made an underground survey of the mine.

To the reports of Messrs. Dean and Murray (which were inserted in last week's *Mining Journal*) your committee would call your attention, as fully confirming all the favourable opinions hitherto entertained with regard to the mine and the improvement therein, since the report of those gentlemen confirms the opinion expressed with respect to the mine becoming, ere long, a source of profit to the adventurers.

With respect to the financial position of the company, referring to the balance in favour of the adventurers, at the commencement of operations, of 1052*l.*, and the balance in favour of the adventurers on the 29th October, 1851, of 710*l.* 19*s.*, shows that the expenditure for that period (six months), as per cost-sheets and accounts, open for the inspection of the shareholders, amounts to the sum of 341*l.* 1*s.*, which is somewhat under the estimate formed by your committee at your last general meeting.

Several tons of tin ore are at grass, and tribute pitches have been set at 10*s.* in 1*l.*, and the produce of the tin has been calculated at 2000 lbs. per 100 acres. The quantity of tin ore likely to be raised cannot at present, with any degree of certainty, be calculated on, the discovery having been so recent; but referring to the reports, and the steady improvement in the mine since sinking on the course of the lode, leads to a well-grounded hope that the yield of tin ore will, ere long, be permanent and profitable.

With reference to future operations, your committee will be guided by circumstances; the balance in hand, with the prospect of returns of tin, will enable them to erect the necessary machinery for returning the tin ore for market, and that without the necessity of making any call on the shareholders, in a few months they will be enabled to place the mine on the list of dividend-paying ones. Your committee conclude, with an assurance that due regard has been had to economy in the expenditure, and beg to solicit an investigation of the reports and accounts of the mine, which are open for inspection, and to state that they consider it no less the duty of the committee to offer, than the shareholders to avail themselves of their right in this respect, as it enables the shareholders themselves to form an opinion of the value of their interest in the undertaking, and to judge for themselves of its prospects and merits.

The CHAIRMAN said the committee had much pleasure in submitting the report to the meeting for adoption, founded as it was upon the practical reports of Messrs. Dean and Murray, and one of their own body having also visited the mine. In congratulating the meeting upon the favourable prospects, he had only further to inform them that Capt Rickard, who had come up to attend the meeting, recommended the erection of a water-wheel and stamps, which would enable them to prepare for market sufficient tin to pay present monthly expenses.

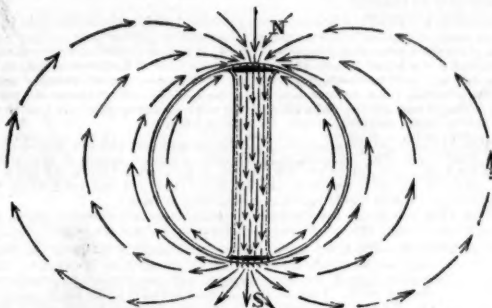
Mr. ADAM MURRAY fully concurred in the suggestions of Capt. Rickard, and stated generally to the meeting the great prospects held out to them by the recent discoveries.—The meeting then separated.

#### THE LAWS OF GEOLOGY AND MAGNETISM.

[From Mr. Hopkins's forthcoming work on *Terrestrial Magnetism*.]

I have endeavoured to reduce all our observations into a system conformably to the well-known laws of terrestrial physics, and thus concentrate the scattered rays of useful knowledge which have been obtained from time immemorial, so as to render them useful to our industry, and especially to mining; the diffusion of the many important discoveries amongst a mass of untenable hypotheses, having hitherto rendered them uninviting, and of no avail to the progress of real geological science.

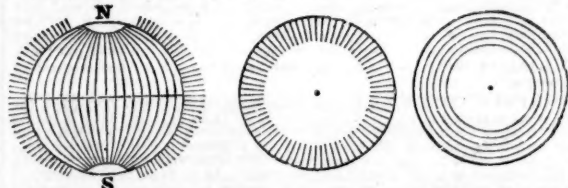
1. It has been shown that the power we call magnetism is universal, and that our globe is a great magnet, with the poles of divergence and convergence placed in its axis, as described in the diagram. The enveloping force rises out of the antarctic region and passes through the earth, sea, and the atmosphere



towards the equator, and thence to the arctic region, to complete the known circuit of power. Hence the curves of magnetic force not only imply the directions of the force, which are made manifest when a little magnet is placed amongst them, but the lines of power which connect the poles and the permanent bonds of the elements of the terrestrial sphere. The more closely we examine the laws of magnetism, and particularly as they are presented to us in their terrestrial operations, the more surprising will their general influence appear to be. We learn by careful research that gravitation and electricity are the effect of the same great cause, which is ever busy in producing the necessary conditions of change in the earth to suit the wants of animated nature. Every substance is under its immediate and constant influence; the rocks, seas, and all the minerals found therein are kept and moulded into exfoliated concentric spheres, and arranged according to their respective densities by the terrestrial magnetic power, and the vegetable and animal life controlled by its radiant force, called by Dr. Faraday diamagnetic. All gases and vapours necessarily ascend by the repelling force of the tension of the denser bodies forming the nucleus.

The system of spherical magnetic forces, arranged according to their densities and the substances with which they are combined, necessarily causes a great tension from pole to pole, the disturbance of which in one part is accompanied instantly by a disturbance of the tension in another part. The tension of water is greater than air, hence a bubble of the latter will ascend in the former. The uniformity and direction of the natural magnetic stream may be altered locally by the presence of a substance capable of transmitting a concentrated stream of the force, like a magnet, and thus rob a large amount of the feeble currents in its vicinity; and should the disturbing agent not be capable of movement, so as to conform to the natural direction of the force, a local bend will be produced.

2. We find that the structure of the crystalline rocks is not alone governed by the power of cohesion or aggregative attraction, but likewise by the great polar force, thus producing beautiful geometrical divisional lines in the primary base, as exhibited by the following circles:—



The first circle represents the polar lines of cleavage, with the external radiant repelling actions (diamagnetic); the second circle, a section showing the radiant planes of cleavage consequently formed by a compound of polar and radiant forces. The third section indicates the concentric arrangement of fluids, or the terrestrial spherical exfoliations. These kind of divisions are frequently impressed on semi-aqueous crystalline matter. Hence the cleavage planes of the primary rocks are not mere local phenomena, but an universal structure, a polar and radiant grain, formed from pole to pole, produced by the permeating action of the magnetic force, through which the subterranean substances are conducted, and the liberated gases escape.

3. The primary film forming the base is a compound of crystals formed from aqueous solutions, and they retain a portion of the mother liquid. These are constantly subject to decomposition and recombination, and the formation of many compounds in their circuit of activity, by the constant influence of the ever-acting polar force, and the surrounding sea of saline elements. The unequal degrees of aggregation cause variation in the surface; hence some parts protrude above the surface of the ocean and form dry land, whilst other parts are depressed, as seen in the following figure:—



This sketch will also show the pointed configuration of the islands and continents towards the south, arising from the action of the oceanic currents which are propagated from the south to the north by the great polar force.

4. It is made evident that the polar splits and transverse fractures which are observed in the crystalline rocks, and their superincumbent sedimentary series, are produced by the polar tension; and that all description of crystalline veins have been formed by the progressive opening and filling of the ruptures by the internal solvents in the intersecting rocks, according to their respective composition. These mechanical and chemical actions being the effects of the subterranean polar currents, not only fill every fissure and vacuity with solvents, by which crystals are formed, and swell open the joints by their growth, but they cause also new fractures and dislocations, according to the local physical conditions. This gradual opening during the growth of the crystals from the sides, accounts for the isolated masses of the bounding rocks found in them, and frequently in angular masses separated horizontally from the bounding walls. The east and west being veins of fractures, are supplied with elements transversely, whereas the meridional splits are filled longitudinally in the direction of the force.

5. The order of the "heaves" or dislocations has been explained, and also the conditions favouring the accumulation of minerals, and the rocks which are found most congenial to the production of different descriptions of minerals in all parts of the world. I have brought forward abundant examples to prove that every mining district has its conducting metalliferous channels, cross-courses, or feeding pores. It is of great importance to bear these facts in mind, to avoid being misled with the notion of supposing that a lode found to contain a rich mass or masses of ore in one place should be equally rich miles off in the direction of the rupture, although in barren rocks; which idea is too often encouraged.

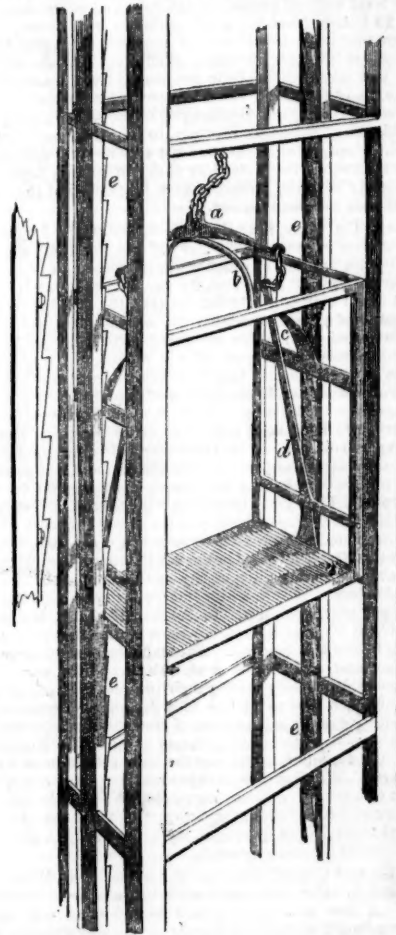
6. I have endeavoured to connect those vague indications applied by old miners in their operations, and reduce them to a general principle for the guidance of the intelligent miner. I trust the increased practical experience in their daily avocations and habits of observing, with the aid of the principles herein

propounded, will enable them to form a more correct judgment of ground, and considerably reduce the present amount of useless and expensive explorations, and lead them with more certainty to new discoveries.

The more carefully these investigations are made, the more convincing and satisfactory are the results; therefore these great principles of polarity, in combination with the various composition of the rocks and their structure, may be safely applied to any mining district in all parts of the world. These laws of geology and magnetism are, therefore, of vast importance to the practical miner and engineer; and the elucidation of the subject to the furthest practical extent, and suitable to the capacity of ordinary miners, is the greatest desideratum which now remains in the art of mining, since the operations carried on for the discovery of the masses of ore contained in mineral veins and metalliferous rocks, cavities, &c., not only constitute one of the heaviest expenses of mining, but it is the vague and precarious result of these trials which chiefly stamps the proverbial character of hazard and uncertainty which is attached to the pursuit. I, therefore, trust that the foregoing chapters, with the aid of the numerous accompanying plates, illustrating the principal mineral districts, will tend to simplify the science, and enlighten those who are interested in the subject, and remove in part that embarrassment and complexity which have hitherto impeded the progress of this department of geological science.

#### SAFETY CAGES FOR MINE SHAFTS.

The awful frequency of fatal accidents in mines has always proved a painfully fertile field for observation in our columns, and when it is considered that one-fourth of these, particularly in coal mines, take place through the breaking of ropes and chains, it is essential that colliery proprietors should be made acquainted with every means by which these sad calamities may be prevented. In addition to Fourdrinier's, and other machines for arresting the fall of the cage in case of a rope breaking, noticed by us for some years past, we would now call attention to one of a simple character, registered by Mr. W. G. Begg, of Edinburgh, and which was shown in the Great Exhibition. From the following diagram its simplicity and mode of action will be apparent:—



It consists of six upright slides, the four corner ones as guides, and the two centre uprights having cast-iron wedge-shaped projections fixed on them, forming a continuous serrated edge from top to bottom of the shaft. On each side of the cage is a lever attached to the cross-head to which the chain is fixed, in such manner that as long as the chain is kept tight by the weight of the cage the levers are kept in their places, and allow the cage to ascend and descend uninterruptedly, but as soon as the rope breaks they are forced out by springs, and catching in the rack at the sides prevent the fall of the load; *a* is the cross-head, or beam, and chain; *b* a guard to prevent the beam falling into the cage; *c* and *d* the spring and lever; and *e* the racks by which the cage is held. There is another arrangement by which the four corner guides are dispensed with, a groove being made on each side of the uprights on which the rack is fixed, and studs or anti-friction rollers being attached to the cage, work in these grooves, and keep the former steady; by this latter arrangement there is a saving of full 50 per cent. in fitting up a shaft. As science has now provided a remedy for these accidents, it becomes the undoubted duty of all connected with collieries to patronise their use, and thus prevent the continuation of such a sacrifice of human life as has been long witnessed.

#### FOR THE SHOOTING SEASON, 1851.—

DEANE, ADAMS, & DEANE, GUN-MAKERS TO H.R.H. PRINCE ALBERT, beg respectfully to call the attention of SPORTSMEN to their late IMPROVEMENTS in GUNS, PISTOLS, and RIFLES, which may be seen and tested daily, with a large assortment of their best town-made GUNS, at the MANUFACTORY, No. 30, KING WILLIAM STREET, LONDON-BRIDGE.—August 7, 1851.

\* \* \* sporting ammunition of the best quality on the lowest terms.

#### BLAKE AND PARKIN, MEADOW WORKS, SHEFFIELD.

MANUFACTURERS OF CIRCULAR AND MILL SAWS, Improved CAST-STEEL FILES, for the use of Engineers and Machinists, Patent tempered MACHINE KNIVES and CUTTERS, manufactured for planing and grooving wood, for cutting paper, iron, stone, leather, &c., made to any pattern or dimensions with the utmost exactness. Warranted to work with a harder and finer edge than any other mode of temper.

Inventors of corrugated cast-steel for taps, piston-rods, &c. —Manufacturers of railway springs, blister, sicular, and cast-steel, &c. &c.

\* \* \* Samples at the Great Exhibition, Class XXII., No. 193.

#### IMPROVED LIFTING JACKS.

MANUFACTURED BY W. AND J. GALLOWAY, PATENT RIVET WORKS, MANCHESTER.

The attention of parties who employ

#### Lifting Sacks,

is respectfully requested to the superiority of those annexed, over those hitherto in use.





### Mining Correspondence.

**ARKE VALLEY.**—In the 80 fathom level we have commenced driving on the western cross-course to see the north lode, and explore the ground in that direction. A cross-cut north has also been set at about 60 fms. east of the engine-shaft, to intersect the north part of Sarum lode, and to cut the north lode; the ground at both



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## MINING IN SOUTH AUSTRALIA—No. II.

[FROM OUR OWN CORRESPONDENT.]

All my preceding communications to you have appeared in one of the local journals here as soon as your paper arrived. The best test of the correctness of my reports is the fact, that not a word I have said has ever been disputed or questioned; the local press is not slow in criticising communications which often appear in English journals, written by prejudiced and uninformed people; and as several of my letters have contained truths which are, doubtless, unpalatable to those whose acts have caused my remarks, you may rely upon it your correspondent would not have been spared by the press, could they have denied or controverted a single statement I have made. I can have no object to serve, excepting the good of the colony, in imparting authentic information to the British mining public; and the republication of my letters here will, I trust, also do good, by letting people see that the transactions of public companies of this place appear in their true colours in your widely circulated and extensively read journal.

Let me instance the Ocaparinga Gold Company, of which I gave you the history on its first formation. Our first merchants were the projectors; in the prospectus they boldly pledged their mercantile reputation—their known caution and prudence—for the correctness of their statements, and the certainty of the results to accrue to the simpletons who were to buy their shares, at a profit of near 20,000% to the projectors. Luckily for their reputation, the simpletons were confined to the projectors themselves; the public thought that it was passing strange the projectors should not keep for their own benefit what they depicted with such glowing colours in the prospectus. The gun, although loaded by such consummate "artillerymen," would not "go off," and at this present moment the not "celebrated," but notorious, Ocaparinga Gold Company is, I hear, about to be wound up, by selling their land, gold and all, by public auction, for what it will fetch.

The Strathalbyn Mine is another defunct concern. You will see, on looking to your back file, what I said about her. The shares in this mine, by dint of "hard persuasion," were sold to a good many people, at a value of 25,000% (12% per share, 2000 shares) for the property. The shares are not worth 5s. a-piece now, and the mine has long since ceased working.

With one or two honourable exceptions, the local press aid and abet this state of things, and instead of being the guardians of the public they mislead the unwary, by the flaming reports they give of those mines who advertise largely in their columns.

A second pumping-engine has been erected at Kapunda; this engine was sent out by the Australian Mining Company, but as she was not wanted there she was sold to the Kapunda, and the water is now kept well in fork. Since then a new and more powerful engine has arrived from England, expressly purchased for Kapunda, but is now for sale—the wants of the mine having been provided for. She will shortly make great play, and is looking very well in the 40 north.

Capt. John Phillips has thrown up his appointment as captain superintendent of the Worthing Mining Company, as he did not like spending the company's money without any prospect of doing good.

A number of sets in different parts of the country continue to be worked, but I do not hear of any results of sufficient importance to induce me to go and visit them. It very soon becomes known here if any thing worth looking at is discovered, but I know of nothing regarding these sets that would interest you.—The stamps for the Tungillo Mine have at last left the foundry, and are now on their way up to Reedy Creek.

## WHEEL CREBOR—PRIZES TO UNDERGROUND MEN.

We have received an early copy of the circular to the underground men at Wheel Crebor, from Mr. Murchison, giving an explanation of the nature of the reports for which he offers prizes:—

Mr. J. H. Murchison will give prizes of 50s., 30s., and 20s. respectively, for the first, second, and third most feasible and most practical report on the state and prospects of this mine—the competitors to be limited to the underground men, who must have worked in the mine at least one month immediately previous to the 20th of Dec. next. The reports will be required to attend to the following points, and may add such other matter as they think fit:—

1. The general nature and character of the various rocks in the sett.
2. A particular description of the various rocks and cross-courses, slides, &c.—their bearings, underlie, size, character, and composition.
3. A description of the workings already made upon the various lodes; and wherever they have proved rich, the character of the rocks forming the walls of the lode in that part—the cross-courses, slides, junctions, or any other causes, which, in the opinion of the reporter, have had any influence in causing the deposit of the ores in the lodes, should be particularly mentioned.
4. The reporter should point out such of the lodes as he would recommend to be worked upon, and give his reasons for the same; also from what points and in what manner the trials should be made.

Three judges will be appointed from among the acknowledged mining authorities. The sett is about a mile square, the boundaries of which may be learned from the agent at the mines, who will also show the plans of the workings, both horizontal and longitudinal, to those who require it.

The reports, under cover and sealed, and addressed to Mr. Murchison, to be lodged with Mr. Joseph Matthews, at the Mining Office, Tavistock, on or before the 27th Dec. next. No names to be attached to the reports, but to be written on a separate piece of paper, and enclosed in them. Each candidate should put a mark upon his report, to prevent any difficulty in identifying it afterwards.

No reports will be returned, but all will become the property of Mr. Murchison. Every candidate should bear in mind that he is not contending merely for the present value of a prize, but that the possession of one, accompanied by a good character for honesty, sobriety, and industrious habits, will be a strong recommendation for his future advancement in life, when an opportunity occurs, not only by his present employers, but also by gentlemen who, through the medium of his report, may become acquainted with his name and merits, and who will be glad to obtain the services of an able and experienced miner as agent.—St. Helen's-place, London.

**WEST WHEAL GRENVILLE.**—This mine, which is now being brought out by Messrs. Foster Brothers, of the Stock Exchange, is situated in the heart of the best mining district in Cornwall, and on the run of the lodes of the most productive and profitable copper and tin mines—West Wheal Buller shares, with 100 paid, are now marketable at 1100s.; Wheal Basset, with 100 paid, lately sold at 385s.; and South Wheal Frances and Wheal Grenville shares are in great favour in the market, at high prices. These mines are all on the same lodes; and we see no reason why the West Grenville should not be equally successful. The character of the reports, and the manner in which the mine is introduced, are sufficiently commendatory. A fine tin lode has just been opened at 5 fms. from surface, the produce of which is remarkably rich, and may be seen (with the specimens of copper) at the brokers.

**THE SLATE TRADE.—CHESTER AND HOLYHEAD RAILWAY.**—A large amount of local traffic will shortly be placed upon this line of railway: the slate trade, which forms by far the most important item in the local trade, will be completely thrown upon it. Its importance may be gathered from the fact that Mr. T. Asheton Smith has, through his agent, Mr. Roberts, contracted for the conveyance of 40,000 tons of slates for the next year. The branch line from the Llanberis Quarry will be ready soon after the commencement of the year, when the produce of the quarry will be available for transit. The formation of the branch line from the Penrhyn slate quarries throws the conveyance of many thousands of tons of slates monthly upon the line, and this will soon be in full operation. For the construction of this branch the Chester and Holyhead Company provided the rails and sleepers, Col. Pennant being at the expense of everything else. A large trade in bricks is expected from the Buckley Mountain, and ores from the lead mines, when the communications with the works are opened, and 40,000 tons of coal are expected shortly to be added to the local traffic of the line.

**IRON SHIP BUILDING.**—A handsome iron screw-steamer, 800 tons burden, and 190 feet in the keel, built by Messrs. Millar, Ravenhill, and Co., has been launched at Newcastle; she is named the *Chusan*, is destined for the Chinese seas, and is built for the Peninsular and Oriental Steam Navigation Company. The launching of it is an important event in the history of the manufacturers on the Tyne. Messrs. Millar, Ravenhill, and Co., the large firm engaged in iron-shipbuilding at Blackwall, have established an extensive factory for the same purpose upon the Tyne, saving thereby a large sum in wages, in fuel, and in the conveyance of material from the ironworks in this district. The principal portion of the plates used in the erection of this vessel have been sent from the Derwent Iron-works, who have a large supply of iron ore from the Easton Nab Iron Mines, in the East Riding of Yorkshire, having a haulage of nearly 60 miles by the Stockton and Darlington Railway. Messrs. Millar and Ravenhill purpose laying down the keels of three more iron steamers here, to be larger than the *Chusan*, for the Austrian Lloyd's Company. Independently of the works mentioned, there are large iron-shipbuilding yards at Wellington and at Shields; and, altogether, iron-shipbuilding, though a modern, is a rising and most important branch of industry in this neighbourhood.

**IRISH MINES.**—Captain Conn, R.N., of Falmouth, and Mr. John Williams, of Truro, Cornwall, have just obtained a 24 years' lease of Coolartha Lead and Silver Mine from the proprietor, Edward W. Bond, Esq., of Bondville. The only lode, out of several sets, which has been proved, averages 15 ft. in width, and from it large quantities of rich silver-lead ore have been raised, although only from 40 to 50 fathoms have yet been worked. The lessees propose bringing up what is technically termed an "adit level," which will unwater the lodes, drain at least 40 fathoms deep, and obviate the necessity of expensive engines. We understand that in the working of this valuable mine rich bunches of ore have been met with, and so much as 10 tons daily brought to bank, and readily disposed of at 13s. per ton. This, indeed, presents an encouraging prospect, and as the cost of working the mine will not exceed 40s. a month, it may be considered a safe and remunerative speculation. The residence, too, of intelligent and enterprising strangers in Annycow will also give an impetus to industrial pursuits, and afford to the labouring classes such inducements as may be a means of repressing that rage for emigration which want of employment is sure to suggest.—*Ulster Gazette.*

## Current Prices of Metals, Stocks, &amp; Shares.

METAL MARKET, London, October 31, 1881.

ENGLISH IRON, &c.		per ton.
Bar, bolt, & square, London	25	5-7 6
Nail rods	6	0-6 2 6
Hoops	7	0-0 7 5 0
Sheets (single)	7	12-6 7 17 6
Bars, at Cardiff & Newport	4	7-6 10
Refined metal, Wales	3	0-0 3 5
Do. anthracite	3	10 0
Pigs in Wales	3	0 0
Do. do. forge	2	5-0 2 10
Do. No. 1, Clyde, net cash	1	19-0 2 10
Blowitt's Patent refined iron	3	10 0
For bars, rails, &c., free on board at Newport		
Do. do. for tin-plates, boiler plates, &c., ditto	4	10 0
Swirling's Patent 7 in Glasgow	2	15 0
Toughened Pigs 3 in Wales	3	10-3 15
Staffordshire bars, at the works	5	5 0
Rails (Staffordshire)	5	10 0
Chairs (Clyde)	4	0 0
FOREIGN IRON, &c.		
Swedish	11	10 0
COND	17	10 0
Indian Charcoal Pigs in London	5	10 0
FOREIGN STEEL, &c.		
Swedish keg	15	0 0
Ditto faggot	15	0 0
ENGLISH COPPER, &c.		
Sheets, sheathing, & bolts, p. lb.	0	0 10
Tough cake	8	10 0
TIN, &c.		
Block	4	4 0
Bar	4	5 0
Refined	4	10 0
FOREIGN TIN, &c.		
Banco, H. C.	3	19 0
Straits	3	19 0
TIN-PLATES, &c.		
IC Coke	1	3 6
IC Charcoal	1	8 6
IX ditto	1	14 6
SPELTER, &c.		
Plates, warehouse	14	0 0
Ditto, to arrive	14	0 0
ZINC, &c.		
English sheet	21	0 0
Quicksilver	3	5 4

Terms.—a, 6 months, or 24 per cent. dis.; b, ditto; c, ditto; d, 6 months, or 3 per cent. dis.; e, 6 months, or 24 per cent. dis.; f, ditto; g, ditto; h, ditto; i, ditto; j, net cash; k, 6 months, or 3 p. cent. dis.; m, net cash; n, 3 months, or 1 p. c. dis.; o, ditto, 13 dis. Cold-blast, free on board in Wales. † Dis. for cash in 14 days, 10 per cent.

**WELSH BAR-IRON** has assumed a duller appearance this week; infrails not any transactions are reported.

**SPANISH IRON** is more inquired for, and a considerable quantity has been purchased for shipment to the East; the local demand continues good.

**SCOTCH PIG-IRON.**—The demand has improved, and a large business has been done, both for immediate and forward delivery. No. 1, American brands, may be quoted at 40s., free on board at Glasgow, storekeepers' warrants. No. 2, ordinary brands, storekeepers' warrants, free on board, at 38s. 9d. Mixed number, makers' obligations, free on board, 38s. 6d.; and No. 3, 38s.

**SWEDISH IRON.**—There is nothing to report this week.

**SWEDISH STEEL** is still without enquiry.

**COPPER** continues in good demand.

**FOREIGN TIN.**—There are buyers of Banco at 78s., sellers at 79s.

**SPELTER.**—Not a transaction has taken place here; about 700 tons have changed hands at Hamburg at advanced rates.

**LEAD** is dull of sale.

**TIN-PLATES** are in fair request.

**GLASGOW, Oct. 30.**—During the past week strenuous efforts have been made to depress the prices of pig-iron by parties who were really desirous of purchasing; these attempts, however, have quite failed, and the market closes very firmly at our quotations, with considerable disposition to buy, but the makers' stocks of good merchantable brands for shipment here, being much diminished, they refuse to sell, and there are few holders of storekeepers' warrants who will sell at present prices. The founders are fully employed for some time to come, and one house of known repute has just arranged to commence a large contract for water-pipes for Quebec.

Mixed Nos., good merchantable brands, free on board here—39s. 6d. per ton, nett cash.

No. 1, ditto ditto 40s. 0d. ditto

No. 1, American brands ditto 41s. to 41s. 6d. ditto

**BOMBAY, Oct. 20.**—With a single exception, all descriptions have been quite neglected during the past fortnight, and prices show an inclination to fall. The exception is Swedish steel, which enjoys an inquiry sufficient to support its value.

**CALCUTTA, SEPT. 20.**—In copper the transactions have been very trivial, and much languor has prevailed in the market. Spelter has been sold to a moderate extent. In lead very few sales have been made, but little alteration has taken place in prices. The demand for tin-plates has become exceedingly depressed, with a decline in quotations. Iron and steel show no improvement from their late inactivity, and the metal market generally is languid and gloomy.

**MINES.**—The business done during the present week is of a satisfactory average. A visible accession of capital has for some time been flowing into the British mine market, causing an increased attraction towards mining shares, which begin to assume a solid position in the minds of the speculative public. The number of dividend mines paying a high rate of interest (few less than 10 per cent., many 15, and others 25 per cent. per annum) throw nearly all other kinds of investment into the shade. This portion of business transactions has been good, while the prospective and speculative undertakings have had their fair share in the business done. Purchasers, we are glad to perceive, take greater pains than heretofore in making due inquiry before they invest their capital. Several of the recently-formed new speculations, which had run to unwarrantable premiums, have found their level, and from the tendency of prices downward, few purchasers are to be found for them at any price; whilst the new schemes for sending large sums of money to California, and other gold regions, meet with only a moderate share of patronage—the public probably thinking it safer to adventure in Cornwall and Wales than at the antipodes.

In the Metal Market, Copper is in fair demand.—Lead continues very heavy.—Foreign Tin, in the early part of the week, had a downward tendency, in consequence of a forced sale; but the market subsequently rallied, and is now tolerably buoyant. English Tin remains unaltered. Tin-Plates rather easier, but in fair demand.—In Spelter, there are no transactions: prices nominal.

In the Bullion Market, Mexican and South American dollars, buyers at 4s. 10½d. per oz. Bar silver containing gold, all gold above 5 grains in the pound to be paid for, 5s. 0½d. per oz. standard. Bar silver without gold, 5s. 0½d. per oz. standard. Bar gold, 77s. 9d. per oz. standard. Spanish doubloons, 79s. per oz. Columbian doubloons, 78s. to 78s. 6d. per oz. American gold eagles, 76s. 2½d. to 76s. 3d. per oz.

The arrivals at Swansea include—from Algiers, 120 tons of copper ore; from Cuba, 1113 tons of copper ore.

## DIVIDENDS MADE IN OCTOBER.

Mines.	Per Share.	Amount.
Wheal Basset	£10 0 0	£2560 0 0
North Pool	7 10 0	1500 0 0
Wheal Seton	5 0 0	990 0 0
Bedford United	0 4 0	800 0 0
South Tolgus	3 0 0	768 0 0
Wheal Tremayne	0 15 0	768 0 0
Ballewidden	0 7 0	568 0 0
Condurrow	2 0 0	312 0 0
All-ry-Crib	0 5 0	312 0 0
Total		£8778 10 0

## CALLS MADE IN OCTOBER.

Mines.	Per Share.	Amount.
Hallamington, &c.	£20 0 0	£10,400 0 0
West Wh. Alfred	0 10 0	3500 0 0
E. Seton & Maud	2 0 0	1024 0 0
Castle Dinas	0 10 0	1024 0 0
Bodmin Consols	1 0 0	1024 0 0
East Sharp Tor	1 0 0	1024 0 0
Wheal Crebor	1 0 0	1024 0 0
Trevelan Consols	1 0 0	1000 0 0
Trevelan	1 0 0	1000 0 0
Wheal Tom	0 10 0	1000 0 0
East Tamar	0 20 0	900 0 0
South Dolcoath	1 0 0	834 0 0
East Wh. Margaret	0 15 0	768 0 0
Wheal Langford	0 2 6	750 0 0
Llwynmales	0 1 0	650 0 0
Garreg	0 3 6	625 0 0
Grumbler & St. Aubyn	2 10 0	607 10 0
West Stray Park	0 0 0	528 0 0
Gustavus Mines	0 10 0	513 0 0
Pendarra Consols	0 10 0	513 0 0
Total		£33,866 10 0

The sale of copper ore at Thursday's Ticking was 2271 tons, amounting to 10,998l. 11s. 6d., the average produce and standard being 7s. 10s. 12s., being a rise of only 2s. 4s. on the two months preceding. The corresponding sale a month ago was 3197 tons, 7s. 10l. 3s.

The ticketings for 90 tons of Foxdale (Isle of Man) lead ore varied from 8l. 4s. per ton, by the Tamar Smelting Company, to 10l. 12s. 6d. per ton, by Newton, Keates, and Co.

Roughton Hill Mine sold two parcels of copper ore, at 20l. 1s. and 19l. 1s. per ton; and two parcels of lead ore, at 11l. 6s. 9d. and 10l. 19s. per ton.

At Rix Hill they have sampled a parcel of tin, computed 13 tons. The south part of the south lode looks well, being estimated to be worth 20l. per fm.

The tribute department shows an average of 6s. 7d. in 1l.

At Trelawny they sampled, on Oct. 25th, 93 tons of silver-lead ore.

At Great Wheal Badden they sampled, on Saturday, 40 tons of lead ore.

At Cwm Erfin they sampled 25 tons of lead ore on the 20th of Oct., the report states they have a good ore lode in the 45 fathom east, yielding 1½ tons per fathom.

At Bryntail Mine, on Thursday, they disposed of a parcel of lead ore, computed 30 tons, at 9l. 12s. 6d. per ton.

At Kilbricken Mine they report the 20 fm. level as yielding 10 cwt. of lead ore per fm.

At Nanteos Mines the lode is 4 ft. wide in Taylor's shaft, sinking under the 40 fm. level. The 30 west is yielding half a ton per fm. The stopes are improving, and yielding fair quantities of ore. There will be 40 tons of lead ore sampled on Tuesday, being three weeks' produce.

At North Pool Mine meeting, on Tuesday, the accounts for July and Aug., showed—Balance from the last account, 1034l. 6s.; ores sold (less dues), 3245l. 2s. 11d. = 4279l. 8s. 11d.—Mine cost and merchants' bills, 2212l. 15s. 6d.; by dividend of 7l. 10s. per share (1500l.): leaving balance in favour of adventurers, 566l. 13s. 5d.

At Wheal Tremayne meeting, on the 22d Oct., the accounts showed—Balance last account, 80l. 4s. 8d.; balance of tin sale, Aug., 17l. 16s. 6d.; sale of black tin, 3221l. 4s. 5d.; copper ore ditto, 328l. 16s. 4d.; arsenic, 137l. 1s. 3d.; tributers' debt, 10s.; carriage of tin, 33l. 9s. 9d.; less lord's dues (178l. 7s. 11d.) = 3640l. 15s.—By labour cost, July, 91s. 12s. 2d.; August, 1099l. 0s. 4d.; merchants' bills, 754l. 2s. 3d.; leaving balance in favour of mine, 874l. 0s. 3d., from which deduct dividend (768l.), leaves in hand 106l. 0s. 3d. A dividend of 15s. per share was declared, and it was resolved that the agents be instructed to press on the erection of the new 60-in. cylinder engine-house, and complete the purchase of the machinery, pitwork, &c., as early as possible. A report from the agent was read, which stated that in the 73 fm. level, in boundary shaft, the branches were improved; in the 73 east, the lode is 1 foot wide, worth 3l. per fm. A new branch had been discovered worth 15l. per fm. In the 63, east of Allen's shaft, it is worth 16l. per fm.; in the same level east the lode is worth 5l. per fm. In Allen's shaft, sinking under the same level, the lode is worth 20l. per fm. Other parts of the mine are progressing favourably, and the tribute department is looking well.

At Ballewidden Mine meeting, on Wednesday, the accounts showed—Tin ore sold, 4199l. 8s. 4d.; sundries, 26l. 6s. = 4225l. 14s. 4d.—To labour cost, July and Aug., 2616l. 18s. 11d.; coals and carriage, 267l. 16s. 5d.; merchants' bills and dues, 751l. 10s. 8d.; showing profit, 589l. 8s. 4d.—less dividend, 568l.: leaves balance to next account, 21l. 0s. 4d. A dividend of 7s. per share was made.

On Thursday a special meeting of the shareholders in the Treviskey Copper Mine, Gwennap, was convened for the purpose of coming to a fresh understanding as to the expense of drawing the water from that mine by means of the engine at Tresavean. Also, as to the claim of one of the shareholders in the latter mine for a proportionate interest in Treviskey. Should the applicant succeed, he will be entitled to his proportion, likewise, of all the back dividends, which amount to 246l. 5s. per share.

At the Fowey Consols meeting, on the 14th Oct., the accounts for four months, ending August, showed—Labour cost and materials for May, 2857l. 4s. 6d.; June, 2904l. 11s. 10d.; July, 2697l. 18s. 3d.; August, 2677l. 13s. 10d.; West Fowey Consols for ore sold, 19l. 8s. 5d.; Prideaux Wood ditto, 12l. 0s. 10d. = 11,168l. 17s. 8d.—Received for copper ore, 10,084l. 0s. 9d.; muddle, 122l.; Prideaux Wood for materials, 265l. 6s. 3d.; executors of J. T. Treffry for materials, Park works, 89l. 3s. 2d.; sundries, 107l. 3s. 7d.: showing a loss of 501l. 3s. 11d., which, deducted from balance end of April, 5633l. 9s., leaves in hand 5132l. 5s. 1d. The loss of 501l. 3s. 11d., however, has not entirely arisen from the poverty of the mine, but in consequence of further liquidation of charges in connection with the man-engine, which has, since the April meeting, been put to work, and we understand performs its humane duties to the satisfaction of all concerned. With regard to the general prospects of the mine, we are informed that, upon the whole, an improvement is gradually taking place, though it would be premature to calculate on a speedy resumption of dividends.

At the Perran St. George meeting, at Newport (Isle of Wight), on Tuesday, the accounts showed—Mine cost for May, 733l. 19s. 1d.; June ditto, 489l. 11s. 4d.; merchants' bills, 347l. 13s. 8d. = 1571l. 4s. 1d.—By copper ore sold (less 1-20th dues and income-tax, 126l. 7s. 9d.), 2477l. 6s.; sale of tin (less 1-30th dues and income tax, 16s.), 23l. 16s. 6d.; showing profit of 929l. 18s. 5d.; add sale of sundry old iron, 13l. 19s.; balance of last account, 1758l. 13s. 7d.: leaves balance to next account, 2702l. 11s. The new engine at Devonshire's will be completed by the middle of December, when the returns will be much greater.

At West Stray Park meeting, on Oct. 28th, the accounts for eight months ending Sept., showed—By call in Sept., 528l.—Balance from last account, 221l. 17s. 2d.; costs and merchants' bills, 240l. 19s. 5d.; paid for grant of sett, 34l. 12s. 2d.: leaving balance in favour of adventurers, 30l. 11s. 3d. A call of 10s. per share was made.

At Wheal Langford and Baring United Mines meeting, on the 9th Oct., the accounts showed—Balance in hand last account, 658l. 17s. 4d.; silver ore sold, 55s.; cash of Mrs. Worth, 10l. = 723l. 17s. 4d.—Paid cost-sheets for March, 71l. 14s. 4d.; April, 75l. 6s. 2d.; May, 112l. 17s. 2d.; June, 95l. 9s. 5d.; July, 117l. 15s. 1d.; August, 72l. 3s. 8d.; expenses of general meeting, 19l. 19s. 6d.; scales, 6l. 10s. 6d.; Ashburton deed, 27l.; on account of engine, 100l.: leaving balance in hand 25l. 1s. 6d.

At Wheal Crebor meeting, yesterday, the accounts showed—Amount of calls received, 3359l.; copper ore sold, 326l. 13s. 5d.; discount and sundries, 29l. 7s. 11d.; loan, 150l.; carriage of ore, 13l. 2s. = 3878l. 3s. 4d.—By purchase of mine sett and materials, 431l. 16s. 6d.; law expenses, 64l. 3s. 9d.; preliminary ditto, 77l. 13s. 11d.; machinery, 19l.; office expenses, 144l. 6s. 6d.; books, stationery, printing, &c., 69l. 7s. 10d.; travelling expenses, 25l.; lord's dues, 20l. 16s. 10d.; working costs and merchants' bills, 2965l. 10s.; interest, 1l. 17s. 6d.: leaving in hand (including 7l. 10s. arrears of calls), 58l. 10s. 6d. The balance of assets over liabilities was 1076l. 10s. 8d. The monthly report of Mr. James Richards stated that in the 12 fm. level it wanted about 14 fms. to reach the cross-course, and, judging from the ground gone through in the level above, it would take from two to three months; and as the lode gone down in the adit yielded from 2 to 3 tons per fm., a course of ore might reasonably be expected. The engine, whim, and pitwork, were complete, and worked well, and the operations altogether in a fair state of progress. Reports also from Mr. Arthur Dean and Capt. Doble, confirmed this, and stated the works to be progressing as favourably as possible. In order to pay for the steam-engine, &c., a call of 1l. per share was made.

At the Halamanning and Croft Goshal meeting, on the 24th Oct., a call of 20s. per share was made, which will make the shares 50l. paid up. They have 100 tons of copper ore at grass, which will be sold during the month.



At the West Polgooth special general meeting, on Wednesday, the accounts showed—Balance last account, 1052l.—By labour cost, from 15th April to 1st September, 274l. 1s. 6d.; preliminary expenses, 32l. 10s. 6d.; travelling expenses, 20l.; office and sundries, 14l. 9s.; leaving balance in hand, 710l. 19s. Capt. Rickard attended to report on the increased value of the discovery lately made, and to take instructions on the subject, when Mr. Adam Murray (who was present at the request of the company) entered fully into detail with him upon the best system to be pursued. It was resolved that stamping machinery be at once erected, which is estimated to cost 160l., and that the shaft be continued perpendicularly to the next lode, where its junction with the rich branch now in the shaft could at once be intersected by a short cross-cut. [A full report of the meeting will be found in another column.]

At the West Goginan meeting, on Thursday, a call of 1l. per share was made, to discharge liabilities and carry on the workings. Three agents were appointed to inspect and report to a meeting to be held on the 15th of November.

At West Goginan meeting, on Monday, the accounts showed—Balance from last account, 123l. 11s. 4d.; July, 121l. 15s. 6d.; Aug., 87l. 3s. 2d.; London agency, printing, &c., 15l. 9s. 9d.—347l. 19s. 9d.—By call, 256l.; leaving balance against adventurers, 91l. 19s. 9d. Arrears due on calls, 38l. 7s. 6d.; if not paid within 10 days, the shares will be absolutely forfeited. A call of 5s. per share was made. The shaft is down to the 30, and the men cutting a plat, preparatory to extending a cross-cut to intersect the lode.

At the Bryn-Arian meeting, on Monday last, the prospects of the mine were considered of a most satisfactory character, and expectations held out that, at the next account, they would be in a position to meet their monthly expenditure. [The agent's report is among the British Mines.]

At Wheal Fortescue meeting, on the 23d Oct., the accounts showed a balance in favour of the adventurers of 272l. 2s. 3d.

At Wheal Maundlin special general meeting, on Wednesday, it was resolved that the mine be divided into 6144 shares, and that each proprietor's shares be increased to six times their present number accordingly; and as a larger amount of labour will devolve on the secretary, his salary be increased to 100l. per annum.

At Wheal Bawden meeting, held this week, a call of 6d. per 3400th share was made. The report states the lode in the bottom of the adit level to be 1 ft. wide, yielding 10 cwt. of silver-lead ore per fm.

At Wheal Tom meeting, on the 21st Oct., the accounts showed—Balance in hand last account, 4295l. 19s. 8d.—Expenditure in seven months to the end of August, 4206l. 17s. 6d.; leaving balance in hand to next account, 889l. 2s. 2d. A call of 10s. per share was made. The report of Capt. James Hosking stated that the strata are of a congenial character—many small veins of quartz pass through the shaft: the veins run north-east and south-west; four lodes have been opened on. The copper lode near Deer Park Gate underlies south about 2½ ft. in a fm., and is from 2 to 3 ft. wide, spotted with copper of an excellent quality; a shaft has been sunk on its course 7 fms. An adit has been driven on the course of the lode 65 fms., and upon a second lode, about the same length, 150 fms. to the south. This lode is from 4 to 5 ft. wide, carrying tin on the back, and is likely to make copper in depth. There are four cross-cores passing through the sett, bearing about 15° or 20° west of north and east of south, and underlying south-west. The engine-house is completed, and a great deal of the castings is on the mine, two water-wheels, whim, &c., calculated to keep the mine drained to a considerable depth.

At the Bottle Hill Mine, in the 24 fm. level, the lode is very large, and good work for tin. All the other lodes are looking well. A tribute pitch has been set at 10s. in 1l. for tin and copper. An additional water-wheel and stamps are in active progress. The burning work has been suspended, in order to put a new house to save the arsenic; this, it is fully expected, will be a source of profit. The first parcel of tin, 5 tons, has been sold to the Charlestown Smelting Company, and has realised 260l. The whole of the works are in a highly-favourable state.

At Boringdon Park the engine will be set to work to-day, and the event will be celebrated by a dinner at Plymouth, on Thursday.

At Old Wheal Basset, the lode in the winze under the 12 is 1 ft. wide producing good stones of ore. There is a tolerably good lode in a pitch below the 12, and one in the level, but other parts of the mine are poor.

At the Wood Mine, the lode is opening rich for lead, beyond the most sanguine expectations, as will be seen by Capt. B. Robbins's report, among the British Mines; allowing, however, for a little excitement occasioned thereby as an excuse for such a very flattering report, the specimens of ore he has forwarded to the office of the company in Threadneedle-street, which we have inspected, warrant the assumption that, by proper development of the mine in depth, there is every prospect of a favourable result.

At West Basset Mine, they have discovered a lode 5 feet wide, with a leader of rich grey copper ore. They expect to hole the cross-cut to the shaft in the 65 next week, which will completely ventilate the lower levels, and afford facilities for working the rich bunches they have met with there.

At the Nant-y-Car Copper Mine, in Breconshire, the most satisfactory progress has been made. About 50 tons of fine copper will shortly be ready for the market. Within the past week many persons have inspected the mine, attracted by the reports of its peculiar character. Capt. Roberts, in a letter dated the 28th Oct., writes:—"I am happy to inform you that the Nant-y-Car turns out all I promised, and all I could desire. We have now ore ground discovered, and proved north of our engine-shaft, to the extent of upwards of 900 fms., capable of yielding from 1½ to 2 tons per fm." Judging from appearances, the estimate of 2 tons per fm. is a very modest computation, but its value will be appreciated by the fact that the quality of the ore has been estimated to average from 15 to 20 or 25 per cent. of pure copper.

At Penrall the lode in the shaft shows some solid ribs of ore from 1 to 4 in. wide; they expect to reach the 20 in the course of the month, where, by cross-cuts, they will shortly intersect the north and other lodes, of which the most favourable anticipations are entertained.

East Wheal Margaret is in a regular course of working, on four separate and distinct lodes, by virtue of a 38-in. cylinder engine. Two of these lodes—Wheal Mirth and Cargenven—are turning out even beyond the sanguine expectations that were entertained; in fact, the lode in the last-named sett is represented as worth from 30l. to 40l. per fm., and can be sunk for 8l.

At Wheal Carpenter (South Sydenham) considerable improvement appears to have been found in sinking the shaft on the course of the lode, below the adit level, during the short time that the engine has been at work; the lode presents not only favourable indications in its general characteristics, but a quantity of valuable silver-lead ore has been raised, and still raising, some of the stones of which weigh from 40 to 50 lbs. [Capt. W. Lean's report will be found among our Mining Correspondence.]

The report of Mr. Arthur Dean, and a deputation of the committee of Lydford Consols, states that at Wheal Adventure the drivings by the present company have been chiefly confined to the extension of the south adit, upon the north and south lodes. Numerous east and west branches and lodes have been met with, which are likely to have had a very beneficial effect upon the north and south lode in depth. A parallel north and south lode, of very promising character, has lately been met with in a cross-cut at 10 fms. west of the old workings, from which it can be easily reached; this is a discovery of much importance. At the surface nearly all the necessary works are completed. A new water-wheel, of 40 ft. diameter, and 5 ft. broad, with 90 fms. of flat-rods, has been erected in a very substantial manner, and is now in use. The engine-shaft is already sunk 70 fms. below adit; the old workings therefrom are of trivial extent, and only require a very small outlay to re-open them: 400 tons of ore were raised from a very limited space. Mr. Arthur Dean is, therefore, of opinion that this concern will prove to be of great value, if the requisite capital be advanced for its development. The report concludes:—

About 250 fathoms west of the Mary lode, a new north and south lead lode, called the Fanny lode, upwards of 10 ft. wide, has been discovered and traced for nearly a mile in the sett; a finer lode can rarely be seen. An adit is now being driven upon its course, immediately adjoining the north boundary of the sett. A new mine, called South Wheal Fanny, has been commenced upon this lode by another company, and where laid out at the surface it presents a most promising appearance, as it does likewise at the Wheal Fanny Mine, about 1 mile further north. We think this lode ought not to be neglected, and as there is a supply of water power at Wheal Mary, available for a wheel of large diameter, we would recommend that preparations be made for the construction of requisite machinery, and the sinking of a shaft upon it, in the spring of next year. In conclusion, we have the pleasure of expressing our entire satisfaction with the state and prospects held out by the company's property at the mines, and we feel assured, if the requisite capital be advanced for their development, that the shareholders will be richly rewarded.

Lamheroo Wheal Maria, as appears from our Mining Correspondence, is progressing in a highly satisfactory manner; a new trial shaft, 40 fms. west from the copper lode shaft, having developed promising appearances for copper and lead. Another small sale of tin has been made at 43l. per ton, and for the arsenic out of the tin (40 to 50 tons) an offer of 3l. per ton has been made.

At Bicton Consols, the engine is being got up with all possible dispatch. The engine and lifts are all on the mine.

Boscawell Downs Mine has greatly improved. They will return from last month's produce upwards of 700l. worth of tin and copper, and there appears little doubt but that the mine will resume its former proud position.

In Wheal Lovell, a considerable business continues to be transacted; from an authentic source, we learn that, so far as a judgment can be formed from appearances, there are a good many dividends in sight. There are no debts on the mine, consequently no liabilities; and the materials, which are valuable, are free. The estimated expenditure to bring the mine into operation was 15,000l.; of this sum something short of 14,000l. has been spent. The mine is not worked for a market, but for a continuance of dividends.

The steam-engine just erected at the Duke of Cornwall Copper Mine, by Messrs. Thomas and Son, of Charlestown, under the superintendence of Mr. Matthew Loom, went to work on the 24th inst., in the presence of a respectable party of the local gentry. The engine is a 30-in. cylinder, and 10 ft. stroke, of equal beam, adopted by Messrs. Loom. The position of the mine is 3 to 4 miles south-east of Bodmin, in an almost unexplored district—the sett consisting of about 500 acres, held under the Duchy at moderate dues; it has been at work for some time by a company of London gentlemen, who have been guided in their operations by the reports of Capt. Vercoe, Kernick, and Hooper, confirmed by Mr. Adam Murray, and the result, so far, has been the cutting of several important lodes in clay-slate, containing much gossan and black oxide of copper. The present steam-engine is intended to facilitate the intersection of these lodes at deeper levels.

At Tyn-y-Worglod Slate Quarry, the report of Mr. St. Pierre Foley, M. E., which will be found in another column, states that there are 41 men engaged in slate making, in a most promising position for good returns. Every division of the open quarries is now producing sound, superior, and fine sized blocks of slate, promising greatly to increase in quantity, and of the best description.

A dinner was given last week at the Globe Hotel, St. Austell, to Mr. George Thomas, the manager of the Great Polgooth Mine, and a presentation of plate was made to that gentleman on the occasion.

Capt. John Lyle has been appointed managing agent to the Pembroke and East Crinnis Mines, which at present are exciting a good deal of interest in the mining world; and it is generally anticipated that all which has been said and prognosticated of them will be fully realised.

During the week shares have changed hands in Alfred Consols, Bedford United, Alt-y-Crib, South Frances, West Providence, Wheal Trelawny, Wheal Golden, Tremayne, Butterdon, Great Bryn, Keswick, Merilyn, Trebell Consols, Tregorden, West Alfred Consols, West Polgooth, Zion, Venton, East Wheal Margaret, Wheal Carpenter (South Sydenham), East Wheal Reeth, Wheal Arthur, Wheal Trowane, West Wheal Rose, West Callington, Garreg, Kilbricken, Lamheroo Wheal Maria, Mining Company of Ireland, Wheal Crebor, Carnvannal, Boringdon Park, Lydford, Wheal Brewer, East Boringdon, East Russell, West Damsel, North Robert, Caradon Wood, and Hennock.

In Foreign Mines, there have been transactions in Imperial Brazilian, Cobre, Copiapo Marmato, Royal Santiago, St. John del Rey, United Mexican, Australian, and Worthing.

The Linares Mine report, from Mr. H. Thomas, is to the 18th October. By fixing a new plunger-lift in the 45, and running down a winze at San Antonio, on the course of the lode, they will reach the 65 fm. level in less time, and save expense. The eastern and upper stopes in the 55 fm. level are yielding from 5 to 6 tons of lead ore per fm. In the eastern department, Thorne's shaft is nearly ready for the masons to wall up; a good opinion of this part seems generally entertained. The tributaries are working much as before reported. Lead ore weighed in, 40 tons: total in stock, 200 tons 10 cwt. Pig-lead smelted, 25 tons 10 cwt.: total in stock, 497 tons 10 cwt.

From Lake Superior, we learn that the celebrated Cliff Mine continues a source of wonder to all who have seen it; it is now worked at the depth of 357 feet, and the deeper the shaft is sunk the richer becomes the vein. Immense masses of native copper, weighing many tons, are found, which require tedious labour with the chisel to cut them into moveable blocks. Many that have been taken out weigh from 4000 lbs. to 5000 lbs. Large quantities of barrel and stamp work are also taken out. The vein leads towards the Lake, and it is by no means improbable that in course of time the works will be extended under its bed, as the mines of Cornwall are beneath the ocean. The North American Mine, a short distance from the Cliff, is yielding richly in copper, and bids fair to be almost as productive.

The exports of mineral produce from Belgium in the corresponding nine months were—

	1849.	1850.	1851.
COAL	1,075,567	1,294,454	1,371,443
IRON—Pig	30,328	60,213	39,703
Castings	286	365	508
Bar	715	997	990
Nails	6,169	7,066	7,253

HULL, THURSDAY.—Messrs. T. W. Flint and Co. state there has been more inclination to do business in mining shares, and Wellingtons, Merlyns, Ventons, Bedford, and some others, could be dealt in at a slight discount in price, there being both buyers and sellers. The Tremayne dividend of 1s. has given satisfaction. West Providence is wanted, but there is none of this stock in the market. Altogether, the market for mining shares looks pretty good, and it only requires a few of the adventures to turn out successful to give a stimulus to this branch of money investment.

There has been a moderate business done in Bank shares during the week at about former rates—no description attracting any particular movement. London Joint-Stock shares are again weaker, and London and Westminster, too, scarcely command so good a figure as they did a fortnight ago, but Union of London continue steadily moving up. The sales reported are:—Commercial of London (20l. paid), 25l.; London Joint-Stock (10l. paid), 18l. 18s.; London and Westminster (20l. paid), 29l.; National of Ireland (22l. 10s. paid), 17l.; Oriental Bank Corporation (25l. paid), 26l.; Provincial of Ireland (25l. paid), 44 43s.; Union of London (10l. paid), 13l. 4s.

Steam-boat shares are very quiet, and the only change is a decline in Royal Mail Steam, which are marked 79 and 78 ex div.; General Steam Navigation shares rule at 27; Peninsular and Oriental, 67; ditto new (10l. paid), 16.

The market for Insurance shares remains much as before. Guardian shares have sensibly improved, and Medical, Invalid, and General Life are also better, but the British Commercial show symptoms of weakness.

The General Reversionary and Investment Society's shares are quoted 95; Equitable Reversionary, 184; London Reversionary, 44; Reversionary Interest Society, 101½—being a rise of 1l.

Miscellaneous shares are quoted:—Assam Tea Company, 9; Australian Agricultural, 15; Australian Trust, 20½; Anglo-Mexican Mint, 23½; Canada Company, 47½; Hudson's Bay Stock, 206; Price's Patent Candle Company, 22½ ex div.; South Australian, 23½; Van Dieman's Land, 1.

CALIFORNIA.—From San Francisco (Sept. 1) we learn that "the yield of gold is steadily on the increase; operations in quartz mining are progressing prosperously, and the prospects of this mode of extracting the metal are rapidly improving. The quantity of gold which will be extracted this year has been estimated at \$70,000,000, and the continually increasing produce of the mines gives promise that this estimate will be realised. The export during last month was \$4,000,000; to-day the steamers will take nearly \$2,000,000. Gold dust is worth \$17 when clean, \$16 and \$16 50 cents, according to quality. Interest of money, 5 per cent. per month on good security. The news of the gold discovery in New South Wales is carrying back a great many Sydney people from this country—a most fortunate riddance, for some of these emigrants have been engaged in all the robberies and other crimes of a like nature which have been committed here for the last two years." Messrs. Sharp and Co., the bullion-brokers, of Winchester-street, are exhibiting a lump of quartz gold from California, weighing 17 lbs.—the value of which is estimated at 500l. This is part of a consignment to these gentlemen from California, and to the curious in metallurgy must be an interesting object.

THE AUSTRALIAN GOLD DISCOVERY.—It appears by the latest accounts, that Governor Fitzroy has been licensing individuals to explore for gold by means of monthly payments in advance, and that the same privilege has been extended to proprietors of the soil, without any fear of their being dispossessed of the fee simple. This is as satisfactory as could be expected from any Government, and will bind the colonists to act justly towards the State. Since these fair terms have been made with individuals, it is but reasonable to suppose that the Government of this country will readily grant extensive privileges to a few public companies in England, for the purpose of exploring the auriferous districts of Australia, one of which has been for some time before the public, under the expectation of obtaining such terms as will be satisfactory to a body of shareholders.

WEST CORNWALL RAILWAY.—The continuation of the permanent way on this line, which is now in progress, will be constructed with Barlow's patent iron chair sleepers, superseding either wood or stone bearings; and a portion was commenced, laying on a viaduct near Chyandour, on Saturday. Time will prove the advantages, or otherwise, of this iron plan; but we have been informed that the experimental part of the South-Eastern line, which was laid on this system, has proved a failure. The massive cast-iron chairs are exceedingly brittle, and constantly require renewal.

We have been informed that the celebrated Jarrow Colliery is filling with water. It is supposed to come from an old working in Percy Main Pit. All the horses have been got out, and the works are at a stand still.

## New Patents.

## LIST OF PATENTS GRANTED DURING THE PAST WEEK.

W. A. Biddell, St. John's-square, Clerkenwell, and T. Green, Trafalgar-square, for improvements in moulding, casting, ornamenting, and finishing articles and surfaces.  
E. Scott, John-street, Adelphi, for improvements in punching, rivetting, bending, and shearing metals, and in building and constructing ships and vessels.  
F. C. Calvert, Manchester, for improvements in manufacturing iron, and in manufacturing and purifying coke.

## DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

F. Lack, Strand, anaphaton.—C. and J. Clark, Street, Somerset, part of an elastic part to a shoe or other covering for the feet.—J. Coate and Co., Brewer-street, St. James's, diagonal semi-oblique penetrating hair-brush.—J. Keralake, Birmingham, button boot.—E. Timmings and Sons, Birmingham, loose heater or Italian curling tongs.—Bathgate and Wilson, Liverpool, cask-head and fastening.—G. Gotch, Islington, window flower-pot protector.—G. Wells, Berners-street, disc valve.—W. Perks, Birmingham, tap.—J. T. and H. Christy and Co., Gracechurch-street, ventilating button.—R. Harcourt, Birmingham, blind furniture.

## PROVISIONAL REGISTRATIONS.

W. Dicks, Leicester, elastic side-piece for boots.—R. Barratt, Great Russell-street, Bedford-square, secured handle brush.—R. J. Smith, Islington, steering apparatus.—G. Sorders, Holland, double-acting safety axle-tree.—P. A. L. De Fontaine-morau, Finsbury, wire cigar light.—J. Roberts and W. Winter, Carlton-hill, glove fastener.—Alec. Mag.

## BLACK TIN

Sold at the Mine, on the 23d October.

Mines.	Tons.	Price p. Ton.	Purchasers.
Lamheroo	4	£43 0 0	Union Smelting Company.
Tincroft	9½	45 5 0	ditto
ditto	28	28 5 0	Daubas and Williams.
ditto	2½	45 5 0	Calenick Company.
ditto	1	28 5 0	Enthoven and Co.
Rix Hill	9	51 10 0	Calenick Company.
ditto	4	29 5 0	ditto

The Lewis Mines have sold 25 tons 1 cwt. 18 lbs. of Black Tin, but we have not received the particulars of price or purchasers.

## LEAD ORES

TICKETINGS FOR ABOUT 90 TONS FOXDALE LEAD ORE.

Bidders.	Douglas, Isle of Man, Oct. 29.	Amount Bid.
Newton, Keates, and Co. (purchasers)	.....	£10 12 6
Mather and Co.	.....	10 10 0
John P. Eytan	.....	10 9 0
Sims, Williams, Nevill, and Co.	.....	10 11 0
Tamar Smelting Company	.....	8 4 0
Pontifex and Wood	.....	9 12 6
Locke, Blackett, and Co.	.....	9 3 6
W. J. Cookson and Co.	.....	9 11 6

Sold at Bagillt, on the 30th October.

Mine.	Tons.	Price per ton.	Purchasers.
Machynlleth	48	£10 12 0	Walker, Parker, & Co.
ditto	9	9 3 6	Newton, Keates, & Co.
ditto	40	10 13 0	ditto
Eagle Rock	21	9 8 0	ditto
Cairnamore	36	9 12 0	ditto
Bryn-Arian	20	10 15 6	ditto

Sold at Aberystwyth, on the 30th October.

Mine.	Tons.	Price per ton.	Purchasers.
Bryntail	30	£9 12 6	Sims, Williams, & Co.
Grogwinion	10	£9 16 0	Sims, Williams, & Co.
Callington	45	16 6 0	ditto

Sold by Powles Brothers and Co.—Received from New Grenada.

To the Sheffield Smelting Company—13 cwt. of sulphuret of lead and concentrated slags at ..... £452 0 0 per ton.  
To Messrs. Newton, Keates, and Co.—10 cwt. of capel stuff, at .... 282 15 0 "  
" " " " 200 cwt. of silver ore, at .... 149 6 6 "

Sold at Swansea, in the month of October.

Mine.	Tons.	Price per ton.	Purchasers.
From Roughtengill Mine (Cumberland), 8 tons copper ore, at ....	8	£30 1 0	per ton.
ditto	1	19 1 0	ditto

Sold on the Mine.

Mines.	Tons.	Price per ton.	Purchasers.
Roughtengill	40 tons of lead ore at £11 6 9	.....	Richardson & Co.
ditto	10	10 19 0	ditto

## COPPER ORES.

Sampled October 15, and Sold at Lendaryn's Hotel, Trawor, October 30.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
United Mines	108	£6 19 0	Wheal Comfort	69	£1 15 6
ditto	105	3 15 0	ditto	61	1 17 6
ditto	89	5 0 0	ditto	60	3 6 0
ditto	77	5 0 0	ditto	58	1 7 6
ditto	73	1 11 6	ditto	3	2 8 6
ditto	71	3 6 6	South Tolgus	68	5 5 6
ditto	59	5 18 6	ditto	63	5 7 0
ditto	57	5 18 6	ditto	41	11 9 0
ditto	46	3 15 0	ditto	27	4 10 6
ditto	45	6 15 0	ditto	21	15 16 0
ditto	41	3 19 0	ditto	15	3 6 0
ditto	40	4 5 6	Tresavean	55	1 17 6
ditto	38	3 12 6	ditto	48	2 16 6
ditto	28	2 1 0	ditto	45	2 3 6
Par Consols	74	6 10 0	ditto	42	3 0 6
ditto	70	6 12 0	ditto	26	3 15 0
ditto	69	5 4 6	ditto	14	3 0 0
ditto	66	6 18 0	Treleigh Consols	53	3 17 0
South Caradon	67	7 19 0	ditto	26	2 12 6
ditto	66	8 14 0	ditto	19	11 18 0
ditto	64	6 7 0	ditto	13	1 13 0
ditto	40	6 7 0	Richard's Ore	20	3 8 6
ditto	31	4 6 0			

## TOTAL PRODUCE.

United Mines	877	£4017 0	South Tolgus	235	£1668 13 6
Par Consols	279	1758 18 6	Tresavean	230	603 3 0
South Caradon	268	1900 11 0	Treleigh Consols	111	519 17 0
Wheal Comfort	251	451 17 6	Richard's Ore	20	68 10 0

Average Standard ..... £105 12 0 | Average Produce ..... 7½  
Average Price per ton ..... £4 16 0

Quantity of Ore ..... 2271 tons | Quantity of Fine Copper, 163 tons 4 cwt.  
Amount of Money ..... £10,998 11 6

LAST SALE.—Average Standard ..... £98 12 0.—Average Produce ..... 9½  
Standard of corresponding sale last month, 101l. 3s.—Produce, 7½.

## COMPANIES BY WHOM THE ORES WERE PURCHASED.

Mines Royal Company	Tons.	Amount.
Vivian and Sons	73	£430 3
Freeman and Co.	255	1067 15 0
Grenfell and Sons	370	1468 18 0
Sims, Williams, and Co.	314	1159 7 2
Williams, Foster, and Co.	607	3596 0 5
Schneider and Co.	121	907 1 8
Mason and Elkington	173	1141 8 6
Total tons	2271	£10,998 11 6

Copper ores for sale on Thursday next, at Andrew's Hotel, Redruth.—Mines and Parcels.—Tincroft 702—North Roskell 441—Wheal Basset 409—Consolidated Mines 395—North Pool 378—Wheal Seton 304—Fowey Consols 239—South Wheal Frances 227—Crane and Bewlawa 50—West Fowey Consols 47—Pendennis and St. Aubyn 18—Wheal Tryphena 4.—Total 3317 tons.

Copper ores for sale on Thursday week, at Andrew's Hotel, Redruth.—



## NOTICES TO CORRESPONDENTS.

**THE SHARE LIST.**—The list of shares, respecting which information was solicited in last week's Journal, was not a correct one: many there enumerated are among the best conducted and most promising of the young ventures. An amended list will be published shortly.

**GOVERNMENT SCHOOL OF MINES.**—(St. Agnes) suggests that, although the Government School of Mines in London is a step in the right direction, the expense is an entire preventive to a very important class taking advantage of its benefits—viz., the working miner. He proposes that there should be itinerant instructors in connection with the London school, who should travel through the mining districts and impart cheap instruction, of a higher class than can be obtained in the usual country schools; for instance, an instructor might devote a fortnight or more in the Tavistock district, the spot to be central, pupils to receive instruction in the necessary rudiments of geometry and trigonometry, to prepare them for dialling, levelling, surveying, &c. The instructor may then proceed to the Callington district and adopt a similar course, while the pupils at the former place are left to study and improve until another instructor, in some other branch of the necessary sciences, attends them; and thus, about three itinerant teachers, by a continuous round of the two counties of Cornwall and Devon, might impart an immense deal of really useful scientific instruction. The idea thus thrown out may lead to discussion as to the means of paying the instructors and general expenses, from which some good may arise.

**BURKE MINING.**—Our correspondent, "Argus" (of Truro), calls our attention to a letter on this subject from "A Miner and Shareholder," inserted in the Journal of the 23d March, 1850, and expresses his opinion that all our readers should peruse the same, as even more applicable to the subject at the present moment than then.

We have received a lengthy letter from Mr. J. C. Green (of Lower York-street), detailing his position in connection with mining adventure: so much complication exists, and so many apparently intricate questions are put, and to which so much importance is attached, that we must decline the responsibility of advising; and would recommend a copy of the letter being forwarded to Mr. Hancock, of Tokenhouse-yard (one of the committee) who, we feel assured, will see that justice is done in the matter. Mr. C. S. Richardson being absent on an extensive mining survey in Waterford, will account for his apparent neglect; while the conduct of the late and present secretaries, we dare say, can be explained. Mr. Green appears to have been so unfortunate in this, his first mining expedition, that he now declares, unless a satisfactory arrangement is arrived at, he will "withdraw his capital, and relinquish all faith in the mining affairs of this country."

**BISHOPSTON MINE (GLAMORGANSHIRE).**—In our report of this mine last week there were two inaccuracies—first, in the name, Bishopstow for Bishopstone; and, second, 10s. instead of 100l. per month for the working cost.

"W. B." (Tavistock) should, in fairness, allow his name to be appended to his remarks respecting Wheel Zion—at least, he must forward it to us, as a guarantee for the correctness of his assertions.

**EAST BASSET.**—This mine is adjoining upon the east the two profitable mines of Wheal Basset and North Basset. The workings have been resumed within the last nine months, as shown in the Journal 8th Feb. last. East Basset, also in the same locality, adjoining Wheal Basset, has been at work upwards of two years.

**WHEAL TONKIN.**—We have received a long communication from Capt. John Seymour, on the subject of Mr. Ennor's remarks on this mine, for which we are very obliged, nor can it be necessary to do so by the "Creditors' Bill," which they obtained last season. We gave our opinion of the enactment while it was proceeding through the House; it cannot now be recalled, and we will hope that past errors will teach all parties a wholesome and salutary lesson.

"T. T." (Camborne) must be aware that we could not give insertion to the particulars he has forwarded us, *ex parte*; the matter having undergone judicial decision must, as far as we are concerned, be at rest; at the same time, it is right that all transfers of shares should be lodged with the pursuer, without the least loss of time, it having been decided in other courts that this is strictly necessary, and if this mode were more observed by share dealers, there would be less cause of complaint.

"A. P." (Pimlico).—We have heard that the Company of Copper Miners in England have been very successful in their endeavours to raise fresh capital, which they are empowered to do by the "Creditors' Bill," which they obtained last season. We gave our opinion of the enactment while it was proceeding through the House; it cannot now be recalled, and we will hope that past errors will teach all parties a wholesome and salutary lesson.

"A Shareholder" (Brussels).—The steel and other products, exhibited in the Spanish department, from the Asturias, were not sent there by the association who had offices in Austinliars, but from several native companies, who have been enabled to establish works there, though they had not any capital like that which their British competitors raised, with what result the public will know.

**EAST TOLSON.**—The Mining Journal of the 2d November, 1850, contains a notice as to the locality, &c., of this adventure.

"T. B." (Truro).—In every state on the continent the mines are under Government supervision.

The communications of Mr. David Mushet on the Newtonian Theory; Mr. W. Radley on Alchemical Science; "C. F." (Lincoln's Inn), and "A Derbyshire Miner" on the High Peak Act, are unavoidably postponed.

## THE MINING JOURNAL.

Railway and Commercial Gazette.

LONDON, NOVEMBER 1, 1851.

The great exhibition of the world's industry—an undertaking marked by circumstances and results unparalleled in ancient or modern times—has now become a subject of the past; and while individuals are calmly discussing its various merits and its probable consequences, and nations are preparing to take advantage of the information and instruction it has afforded, the time appears to us to have arrived when calm reflection, and a recapitulation of the facts within our knowledge, will enable the public to judge to whom the merit of originating the scheme is due. That the name of the individual from whom the idea emanated, no less than his to whom the public are indebted for the achievement, should be concealed, is not in unison with the English character; yet such would appear to be now attempted—a veil having purposely been thrown over the real origin of the great gathering, and all the credit attributed to Prince ALBERT alone. Well, indeed, does his Royal Highness deserve of the country in all his actions—and never, we believe, was a prince more deservedly respected and beloved than he is by his people; the liberality of sentiment, the firmness and perseverance with which he carried out the great design, in despite of the sneers of the envious, the fears of the pusillanimous, and the opposition of the selfish, will alone immortalise his name, nor would we detract one iota from the galaxy of his world-wide fame;—but this should suffice; and, however humble the individual who suggested the idea, and spared neither time nor his own private pecuniary resources in furtherance of the object, it would be but common honesty in his Royal Highness, notwithstanding the continuous assertion of others to the contrary, boldly to acknowledge that the idea proceeded from Mr. FRANCIS WHISHAW, when secretary of the Society of Arts. As early as 1844 that gentleman endeavoured to elicit some demonstration of public opinion in favour of a plan we know that he then had contemplated for establishing an Exhibition of the Products of National Industry; and at a *soiree* on the 6th December, in that year, in the society's rooms, at his own expense, certainly the very first exhibition of works of industry and art took place, and which was most unquestionably the parent of the Great Exhibition of 1851. The fact will become evident, by referring to the *Times*, the *Mining Journal*, and other newspapers, of the 30th November, 1844, where an advertised announcement of the first exhibition appeared, in which a premium of 50l., or a silver goblet of equal value, was offered for the best design for a building for the exhibition, and cards issued for a public examination of the designs sent in. The event caused great attention at the time, and the *Athenaeum*, the *Art Journal*, and the *Mining Journal*, afford lasting records of the great fact. Another industrial exhibition took place on the 28th Jan., 1845, and the earliest suggestion for the formation of periodical industrial exhibitions, in connection with the Society of Arts, was made by Mr. WHISHAW, and reported to Prince ALBERT on the 2d June, 1845, on the occasion of the annual distribution of prizes of the society. His Royal Highness was struck with the grandeur of the scheme, and desired him, so soon as the project should be more matured, to lay the whole *en masse* before him. In 1846 Mr. WHISHAW visited single-handed half the principal manufacturers of the kingdom, in order to obtain their co-operation in bringing the great project to a successful issue; he carried on an extensive correspondence on the subject, had repeated interviews with Sir JOHN GUEST, Mr. R. STEPHENSON, Mr. WM. FAIRBAIRN, Prof. BENNETT WOODCROFT, also Mr. BOULNOIS (of the Baker-street Bazaar), and other capitalists; was one of the five members of the committee who met for the promotion of the Exhibition of the 26th June, 1849, when it was decided to admit goods from all parts of the world; visited the exhibitions of Berlin and France; and attended nearly all the meetings, and even gave in a design for an Exhibition building, 1500 feet in length.

After all these persevering exertions, with great expense, in the spring of 1850, as the project approached maturity, he found himself entirely deserted and neglected by the executive committee; he accordingly wrote to the Hon. Col. GREY, with a view to obtain his Royal Highness's instructions as to his services being continued in the cause. By special direction the letter was referred to the Royal Commission, and by that body handed over to the executive committee, who reported that no *additional assistance* was required; notwithstanding which assertion a large number of persons were afterwards engaged, some at high salaries; while he, to whom the

very Exhibition was due, has been utterly neglected, injured in a pecuniary point of view, and distressingly wounded in mind. To trace the cause of this unfair treatment to its source would probably be a difficult task, brought about as it was by chicanery and combination; but this we do know, that Mr. JOHN SCOTT RUSSELL, who succeeded Mr. WHISHAW as secretary to the Society of Arts, and first introduced by him to the executive committee, is not free from the charge of an underhanded attempt to injure his former friend in the opinion of his colleagues; for at a meeting of the Society on the 8th Feb., 1850, he made a most unjust and ungenerous statement, full of inaccuracies, which he refused to alter or acknowledge, evidently with a view of obtaining favour with the Prince, by attributing the whole merit of the proposed Exhibition to him, although no man knew better than himself that it originated with Mr. WHISHAW—an idea, in fact, to the elaboration of which he had devoted years of his life.

In making these remarks, we can have no other motive than the desire to see truth and justice prevail; and while the subject of them finds men rewarded with emoluments and honours, who have not done one-tenth part towards the grand affair that he did, and while he is, in fact, treated with silent contempt, he will at least have the consolation to know that one public journal has espoused his cause, and made the public acquainted with the true version of the case.

Our readers will have observed, perhaps, the announcement of a summons from the board of directors of CAMERON'S COALBROOK COMPANY to the shareholders, to consider the propriety of dissolving and abandoning the enterprise, so long mismanaged, and also the prompt sequence—a winding-up notice, the latter of which we can regard in no other light than as an attorney's job to prey upon the vitals of this unfortunate proprietary. No sooner is it proposed to settle affairs and close the concern in the regular course, without litigation, than some amiable adviser, with the most *disinterested* views, presents a petition from clients in leading-strings to preclude amicable arrangements, and heap up expenses which must be ruinous to all parties—except the ministers of the law. From a circular issued by one of the directors, Mr. SMALLBONE, dissenting, it appears, as to the abandonment of the mines, we were made aware that a proposal was to be submitted, on Thursday last, to a meeting of the shareholders, at the George and Vulture Tavern, suggesting an alternative; but as it was a private meeting our reporter was not admitted. We consider that, however confidential such conferences may be, strict reserve is inexpedient in a company so situated; for publicity, with some control, is due to the absent, and we are always disposed to withhold observations which prudence requires to be kept back, when there is no improper motive for that course. We are now indebted to a correspondent, a shareholder who attended, for a report given in another column; and if there be any misrepresentation, the parties have only to blame themselves for excluding a qualified reporter.

To prove to all interested, that a recourse to the equitable (?) machinery, as heretofore administered, of the Winding-up Act is by no means captivating or beneficial, requires little exertion on our part. We have only to point to the lamentable results of every case now before the court. The questionable advantages are, the fees to counsel and bills of costs to the solicitors, the charges of official managers, and the impunity and triumph of fraud; whilst the *per contra* of the account has been little else than spoliation of the rich, disquietude and despair for all, and ruin and desolation in the homes of the less affluent. Anything whatever, that may avert such calamity should be attentively considered; and let not lawyers, who regard solely their six-and-eightpences, lead men by the nose to their destruction. The shareholders will be told by their advisers, "You can't suffer this or that prejudice—the law is with you." But reflect, we say; for, by-and-by, you will find yourself, like the delinquent in the stocks, visited with the actuality of the affliction you were assured to have been impossible. You may be then told that such punishment is beyond the power of circumstances to inflict; the melancholy reply will be—"But I AM in the stocks."

We express no opinion upon the merit of this project of Mr. SMALLBONE. We assume it will be repeated at the general meeting on Monday next, when it is hoped our reporter will be permitted to attend. We, therefore, abstain from discussing the feasibility of the plan till we have accurate data for our consideration.

The attention of our readers is particularly recommended to the case of MICKLETHWAIT v. WINTER, recently decided in the Court of Exchequer, as one containing several points of great consideration in reference to the enclosure, by Act of Parliament, of common lands containing within them valuable minerals. The facts of the case are these. At the time of the passing of an Act of Parliament for enclosing the open manorial common of Ardsley, in the West Riding of Yorkshire, the soil and freehold thereof was vested in the lord of the manor, subject to certain rights of common in the tenants. The lord also was entitled to the *coals, minerals, and unopened stone quarries, earth, and other substances*, under such common, as part of his freehold, and also had the right to win and work them for his own benefit. The Act did not recite the particular rights of the lord; but enacted that certain allotments should be made to the commoners in lieu of their rights, and to him, as lord of the manor, for his right "to and in the soil" of the said common lands, and also "to and for the damage and injury he would sustain by being obliged to make satisfaction to the proprietors of the lands for digging coals and minerals;" and it also enacted, that if the lord should enter on the lands of any of the allottees or proprietors, "for the purpose of digging, getting, &c., any coals or other minerals, he should make compensation to them for the damage done." There was no express reservation of the mines, or minerals, to the lord.

An award was made by the Enclosure Commissioners pursuant to the Act, which awarded allotments to those interested. Among whom was R. CROOKES, who accepted his allotment in lieu of certain rights of common to which he was then entitled over this common. The award stated that the land and grounds thereby allotted should be in lieu, and full satisfaction and compensation for, the several and respective rights of common, and other rights and properties whatsoever, in, over, and upon the said common, or waste ground, and that from the time of the execution of the award, the right of the lord of the manor in and to the soil of the said common, and every part or parcel thereof, and also the several rights of common, should cease, determine, and be for ever extinguished. CROOKES enclosed his allotment, and, after enjoying it for some years, died; subsequently the defendant, who claimed through CROOKES, opened a quarry upon CROOKES' allotment, and dug and raised therefrom a large quantity of grindstones, and flag and other stones, which he appropriated to his own use, but which the plaintiff claimed from him, as lord of the manor, in an action of trover. The question raised on the above facts, for the consideration and opinion of the Court of Exchequer, were—first, whether the minerals under the common were reserved to the lord of the manor by the Act of Parliament; and, secondly, whether the grindstones, &c., claimed were minerals within the meaning of the words, "coals, or other minerals," contained in the Act, as above mentioned.

After an elaborate argument, the Court, in giving judgment for the plaintiff, decided—first, that the plaintiff, as lord of the manor, was entitled to the mines and minerals under the common so enclosed, and could work and earn them, on payment of compensation to the owners of the allotments for the damage done by working them; and, secondly, that the word "minerals" included stones dug from mines or quarries, and not picked from the surface merely, and that they belonged to the plaintiff, as lord of the manor.

The soundness of the above decision cannot for a moment be doubted, based as it was upon the obvious construction of the Act of Parliament in question, and the law as laid down in *ROUSE (Earl) v. WAINMAN*, 14 M. and W. 359, which has since been confirmed in the Exchequer Chamber. We, however, advise all those interested in common and other lands to take this case as a warning, and thoroughly ascertain the nature of their rights therein, especially as regards the ownership of the minerals; and also that those rights are clearly and unmistakably expressed in the bill for the

enclosure before they consent to it; the minerals under the surface of common lands being, for the most part, more valuable than the surface itself.

A case of considerable importance to the public in general, but more particularly to the inhabitants of the largely-populated mineral district in South Wales, where the circumstances occurred, came before the Small Debts Court of Newport, in Monmouthshire, on Wednesday, the 22d Oct., in which JAMES BROWN, Esq., of Newport, was plaintiff, and the Monmouthshire Railway and Canal Company defendants. The question at issue was, whether the Company were not compelled, by their Acts of Parliament, to convey passengers, by locomotive power, from Newport to Beaufort. It appears they have a passenger line to Aberbeg, where two roads branch off; one to Nantyglo on the right, the other to Beaufort on the left; on which two branches goods, but no passengers, are carried. Mr. BROWN having applied at the station to be conveyed to Beaufort, was refused, but offered to be taken by horse vehicles on the tramroad, which was declined: plaintiff then took a fly, the cost being 3l. 15s. 6d., to recover which the action was brought. Mr. PHIPPS conducted the case for the plaintiff, and said that the question would mainly turn on the 110th and 111th sections of 8 and 9 Vic., cap. 169: he contended that the company were not only empowered but compelled to carry passengers from Newport to Beaufort, and that they had been violating the Act ever since August, 1849, in not opening the road above Aberbeg to Beaufort for passenger traffic. The company was formed in 1792, and three parties were, by the Act of Parliament, connected with the formation of the several lines of road,—the Monmouthshire Company, the Sirhowy Company, and Sir CHARLES MORGAN; these were each compelled to complete their share of certain roads, and in default the others might do so, when the roads vested in them. The roads in question were then not only the usual means of conveyance, but the only highway through the district for passengers by various modes of travelling, on foot or horseback, and in vehicles, the wheels of which fitted into the tramroad. Mr. PHIPPS then came down to the time when they obtained their Acts in 1845, and showed that they had until August, 1849, to complete their lines fit for passenger traffic; that they had taken full control over the railroads and tramroads, other persons' horses not being allowed to travel on them under a penalty of 5l. for each offence. It was but just to Mr. BROWN to say, that seeing the company did not comply with the Act of Parliament in providing for passenger traffic, that gentleman had resorted to various means to compel them to do so without effect, and had brought the present action, to get the compulsory powers of the Act enforced. It thus appeared, that the only communication between the districts since 1792 was now closed, except under penalty, and Mr. BROWN had come forward solely on public grounds. The necessary witnesses having been examined to prove the facts of the case, which were not attempted to be controverted, Sir THOMAS PHILLIPS rose for the defence: he did not blame Mr. BROWN for what he had done, but he thought he ought not to have adopted this course, after having been offered to be taken to Beaufort by horse-power. He appeared to rest the defence on the point that the company were only compelled to do certain things as far as they were able; that in this case they were unable, having expended all their capital. That this had been considered a sufficient answer to a mandamus; and he further contended the action could not be brought as the present one was; the remedy must be sought for through the Railway Commissioners. We shall give the result when the judgment of the court is made known.

The necessity of giving our practical miners a scientific education has long been acknowledged; and it has justly been considered a reproach that a country possessing so much mineral wealth as the United Kingdom, has not earlier thought of the formation of some institution to remedy this defect. The exertions of a few eminent individuals, aided by the Government, has at length removed this reproach from us. The Government School of Mines has been instituted. The inauguration, by the general director, Sir Henry de la Beche, will take place on Thursday next, when the objects and details of the institution will be fully explained. It is our intention to carefully follow the school in its different phases. By its erection a great desideratum is obtained. Its object is for the good of "one and all," and we trust it will receive that support from the mining districts of the different parts of the United Kingdom which it so well merits. The desire of the promoters is to impart knowledge to all who seek it, and to aid and lessen the labour of the practical man by the assistance of science and an acquaintance with the laws of Nature. We do sincerely hope that this institution will not be regarded with that apathetic indifference which, unfortunately for themselves, has, in many instances, characterised our miners; at the same time, we trust that no ill-feeling or petty jealousies will be allowed to impede its career of public utility.

On Friday next the Governor and Company of Copper Miners in England propose to hold two meetings; one, of the debenture holders and creditors, in the morning, and the other, of the stock and scrip holders, in the afternoon: It would appear, that a portion of the debenture holders and creditors are not desirous to come under the provisions of the new bill, but would rather prefer proving before the Master, and obtain something from the fund, instead of becoming partners in this new company, which probably may have to run the same career of extravagance and mismanagement as its predecessor. The Bill was obtained last session; and it would seem that the committee for the revival of the company have been coquetting, in order to obtain a majority of the creditors to give their sanction, so that they might come in under the new Act; not being able to effect this, they are now obliged to call a public meeting. One question naturally suggests itself—Why was not this done previously? Why not have the honesty, the manliness of purpose, to come forward and state their views, and disclose their true position, which now they are obliged to do? Six months would then have been saved, which has now been recklessly thrown away, and the company placed in a position to resume its activity, if such does exist in so inert a body. The committee has been now over two years in existence, and seems, to use Alderman GARDEN's words, likely to "end in smoke" as its predecessors. The bill has been obtained, no arrangements made with creditors, and, for aught we can see, they are exactly in the same position as they were three years since. Every one interested should attend the meeting, so that some definitive arrangement could be concluded, and a solution of difficulties arrived at. To effect this, a clear and open understanding, without any reservation on either side, must be come to, all ideas of jobbing must be eschewed, and no further waste of time allowed. The maxim of the committee must be now—"Deeds, not words."

**COMPENSATION CASE.**—An Arbitration Court was held at Newport, Monmouthshire, on the 21st Oct., before Mr. Wills, the barrister appointed by the Attorney-General (as agreed by both parties), to determine the amount of compensation due to Mr. W. S. Cartwright, the owner of the Waterloo Colliery, from the Monmouthshire Canal and Railway Company, in consequence of an alteration in the tolls which the company are empowered to impose by the Act of 1845, and of the loss which Mr. Cartwright will sustain by the enforcement of the provisions of the Act of 1848. It appeared from the statements of the counsel, that Mr. Cartwright had vigorously opposed the passing of these Acts in Parliament, and that the committee on one of the bills in the House of Lords had passed a resolution favourable to Mr. Cartwright's claims. Mr. James appeared as counsel for Mr. Cartwright, and Sir Thomas Phillips and Mr. Grey for the company. In opening his case, Mr. James stated that Mr. Cartwright was the owner of the Waterloo Colliery, the produce of which was conveyed first over a tramway, belonging to Sir B. Hall, M.P., 7½ miles in length, and then over 7½ miles of the company's tramway, to Newport, where it was shipped. The average quantity of coal worked was 80 tons per day, and there was unworked coal in the colliery to supply this quantity for at least eight years to come; he, therefore, took the loss which Mr. Cartwright would sustain on a tonnage of 192,000. He then showed, by producing the Acts of Parliament, that an additional toll of a farthing per ton per mile was empowered to be imposed, and afterwards proved that it had been enforced from the 1st of August, 1850. This item, reduced to a present money payment, amounted to 2809l. The next, and principal item, was the increased cost of the haulage on Sir B. Hall's road, in consequence of the company insisting on the claimants adopting a certain description of waggon, which would limit the net quantity of coal, conveyed by a horse, to one-half of its present load, and thus doubled the cost in this item, and increased it in several others. The amount claimed, reduced to present money value, was 7043l. Other items of increased expense amounted to about 650l. Mr. James concluded a very able and lucid speech by calling the following witnesses:—Mr. VAWN, the claimant's chief clerk; Mr. James Brown, coal owner; Mr. Joshua Richardson, C.E.; Mr. Martin Morrison, coal owner; Mr. David Rees, haulier, and several others, whose evidence confirmed the statements made by the learned counsel, and which was unshaken by the able cross-examination to which they were subjected by Sir Thomas Phillips and Mr. Grey. No witnesses were called on behalf of the company, but after a short adjournment Mr. Grey made a speech, displaying great legal acumen and ingenuity, in which he granted Mr. Cartwright's claim to the first item, with a small deduction as to the quantity of coal, but contended that he had no legal right to his other demands. By the courtesy of the company's counsel, Mr. James was permitted to reply to the legal question raised by Mr. Grey, which he did with great ability and force. Considerable interest was manifested by the colliery owners of the district in this inquiry, and the decision of the arbitrator is anxiously expected.



## IMPROVEMENTS IN THE MANUFACTURE OF GAS.

The competition which has of late years sprung up in the supply of the important article of gas to the inhabitants of the large towns of the United Kingdom, has not existed long without the production of one of its legitimate effects. It has drawn the attention of parties skilled in the chemistry of gas manufacture, and careful observers of the circumstances under which the best results are obtained, to the study of improved methods of treating the various substances capable of being used in the production of gas; and the first fruits are visible in the process lately patented by Messrs. Barlow and Gore, which, in the opinion of some of our most experienced gas engineers, is destined to produce a speedy revolution in the manufacture of gas, and materially to diminish the cost of its production.

The processes are based—1. Upon an improved method of rendering luminous the gases resulting from the perfect decomposition of water or steam; and—2. Upon the conservative influence which hydrogen exercises in protecting the matter upon which the illuminating power of gas depends from decomposition by heat.

The first has been attempted by Donovan, Manby, White, Webster, and others with dubious and disputed success. Their failures are all traceable to the same sources—first, to the impossibility of insuring the complete decomposition of the water or steam by any of the means employed by them, and to the consequent production of a large quantity of vapour exercising a fearfully destructive influence over the carbonaceous matter undergoing decomposition for the purpose of rendering the water gases luminous; and, secondly, to the presence in the water gases of from 10 to 15 per cent. of carbonic acid, the injurious effects of which upon the flame need not be here further alluded to, and the expenses of abstracting which by any of the ordinary methods are so considerable as materially to augment the cost of manufacture, besides diminishing the volume of saleable gas. The present patentees propose to obviate these difficulties by first condensing the water gases, so as to deprive them of all excess of vapour, and then to pass them through a heated retort containing carbonaceous matter, by which the whole of the carbonic acid gas will be converted into twice its bulk of carbonic oxide gas, and the pure hydrogen and carbonic oxide gases in equal volumes, free from carbonic acid, are afterwards admitted in regulated quantities into retorts where carbonaceous matter is undergoing distillation or decomposition, and by which they are rendered highly luminous. The conservative effect of hydrogen upon olefiant gas has not, we believe, hitherto been noticed by chemists. It may, however, be demonstrated by the following very simple experiment:—If olefiant gas be passed through a red-hot tube, the carbon will be deposited, and the gas be thereby converted into light carburetted hydrogen, a gas of very low illuminating power. If, however, hydrogen be added to the olefiant gas the same process may be repeated without causing any deposition of carbon, and with only a diminution of illuminating power in the mixed gases, due to the increased volume of the non-illuminating gas—hydrogen.

The practical effect of this property, when applied to gas making, is to reduce the quantity of condensable products, such as tar, &c., and entirely to prevent the deposit of carbon on the interior surfaces of gas retorts.

The importance of these discoveries will be readily understood, when we state that the experience of the patentees leads them to the conclusion that upwards of 50 per cent. may be added to the volume of gas yielded by all descriptions of materials ordinarily used for that purpose, without any diminution of the illuminating power, so that 15,000 cubic feet will be the probable future produce from 1 ton of Newcastle coal, and 75,000 cubic feet of London gas from the same quantity of Boghead Cannel, the ashes from which are further stated to be the best material known for the manufacture of alum, the residue after the abstraction of the alumina being also valuable for the manufacture of pottery, porcelain, and glass, and as a dentifrice, a polishing powder, and decolorant—truly we live in an age of invention and wonders. We may add that the Chartered Gas Company of London, the patriarch of gas companies, have agreed with the patentees for licenses to use the processes at all their works.

## PROGRESS OF THE MANUFACTURE OF PEAT.

Among the several processes, patented and otherwise, for the conversion of peat into charcoal, and other useful products, which we have had occasion to notice during the past few years, was one known as "Stone's Patent," more particularly applicable as a manure; and a second one has recently been obtained by the same parties, which promises to be of considerable importance in a generally commercial point of view. The number of products obtained from the dry distillation of peat by this process is, indeed, somewhat surprising, many of which may, at some future period, be brought into use for purposes hitherto not contemplated. In the production of peat charcoal, there is obtained, during the process, sulphate of ammonia, acetate of lime, and a residual oil, which the patentees term "Paraphosphatized." From this latter substance, by re-distillation, is obtained pyrolytic acid, liquid ammonia, a heavy oil termed "pentole," and a highly inflammable and attenuated oil, called "peupione," so light that it floats on common wood naphtha, a substance which may probably be turned to important uses in chemistry and the arts. In addition to these, we have an alcoholic spirit of a strong whiskey-like smell, and a pure liquid bi-sulphuret of carbon, obtained by passing vapour from sulphur, in a close retort, through incandescent peat charcoal, and condensed in the usual manner; the carbon remaining is highly impregnated with sulphur, and may prove valuable in the manufacture of gunpowder. After the several distillations have been accomplished, the residuum produces a black wax, a vegetable tallow, termed "paraffine," a brilliant blue powder, probably coloured by the ferro-cyanide of potassium, which would most likely be useful as a pigment, and a bright yellow ochre. By peculiar mixing and managing of these various products rich brown varnishes of various shades are obtained, and a soft fatty substance, highly valuable for lubricating machinery, currying leather, and other purposes.

The improvements under the patent, the specification of which has just been published, consist of a mode of charring or distilling peat, wood, or tanner's bark and coal together, for making a peculiar kind of coke, producing gas for illuminating purposes, and for obtaining the oils, spirits, greases, &c., before mentioned. To prevent the necessity of pressing peat before charring it, it is mixed, in a dry and pulverised state, with powdered bituminous coal; this mixture is placed in retorts, in such manner that the peat contracts, while undergoing the charring process, and the coal expands, producing a far more compact and dense charcoal than could be obtained from peat alone. To obtain a still more condensed form of this compound coke, should it be desired, a plate of iron, or piston, is fitted into the retort, with a screw-bar passing through the door, by which the substance may be compressed to any density required. By re-distilling the vegetable grease mentioned above, for lubrication, &c., and which is termed "adiposole," another oleous liquid is obtained, and a residue, called "pencertine," which has the property of giving a fine black polish to leather. The patentee also mixes these greases and wax with gutta percha dissolved in the bi-sulphuret of carbon, adding cork, turf, waste wool, cotton or rags pulverised, and while warm passing the substance through rollers, so as to form it into sheets of any thickness, or tubes, which may be applied to many useful purposes.

For the manufacture of the "huminate," or vegetable manure, finely pulverised peat is mixed with blood, urine, ammoniacal liquor from gas-works, &c., which may be applied in the usual manner; or the seed, having been covered with an adhesive matter, may be coated with it. The patentee also prepares humic, or peat acid, by boiling peat with a solution of caustic potash, and precipitating by means of sulphuric acid, which is added to the other ingredients; employing also coal oil, shale oil, or other strong smelling ingredients, to protect seeds and plants from the ravages of insects. Such is a general outline of the uses to which the products of peat may be applied; and the general operations under this patent are likely to produce important results, and prove of great value both to the agriculturist and to commerce.

**CURIOSITIES OF PEAT.**—Among what may be termed the curiosities of peat, there are found in Shropshire, in addition to the common black oak, large pine trees in wonderful preservation, not in the least discoloured, and which may be split and worked in the same manner as a piece of well-seasoned common deal; while, from the iron and other matters with which it has become impregnated, it may be said to be naturally Kyanised, and is probably indestructible by the mere action of the air or water. We understand that one party has already obtained 1,000 acres on Fenn Moss, Shropshire, the property of Sir John Hanmer, Bart., and another 5000 on Deeside, and at each place active operations have commenced.

## AIR NAVIGATION—THE ROTARY BALLOON.

Among the numerous plans which have, at various periods, been proposed for aerial navigation, we noticed in the Exhibition a new kind of balloon, the invention of Mr. J. Luntley, by which, contrary to all former propositions, it is to become its own propeller. We have received a pamphlet descriptive of the details, a brief explanation of which follows. It is proposed to form the balloon as a gigantic screw, and to rotate upon an axis by the aid of an endless belt, set in motion by a steam-engine; thus, worming its way through the atmosphere, it could by proper arrangements for directing the fore point of the screw, become also its own rudder. In meeting the objection that the bulk of balloons necessary to take up engine power must be so great that their resistance to the air must render it a hopeless task to propel them with tolerable speed, the writer states that this is not such an insuperable difficulty as it at first appears; for, although their size must certainly be greatly increased to carry engine power, yet it does not increase in the same ratio as the buoyant power. A balloon twice the diameter of another of similar shape will, of course, encounter four times the resistance; yet, its buoyant power will be eight times as great, the simple rule being that, while its surface and consequent resistance increases as the square of the diameter, its capacity and buoyant power increases as the cube of the diameter. On this data it is obvious that there is a point in the scale where the buoyant power would be sufficient, and it is this which is sought to be discovered. Mr. Luntley proposes to form a balloon 30 yards in breadth and 120 yards in length, giving as cubical contents 70,000 yards, and as hydrogen gives a floatage of 1.7 lbs. for every cubic yard, the buoyant power of such a machine, allowing for condensation, would be 118,000 lbs.; and allowing 15,000 lbs. as the weight of balloon, cordage, car, netting, &c., leaves a power equal to 103,000 lbs. for engine, fuel, &c. There are numerous further details as to the working of the machine, into which we have not space to enter; the above, however, are statistical facts, which will give the aspirant to aeronautic fame some idea of the difficulties he has to contend with before he can realise any large available power to enable him to take advantage of the steam-engine for aerial propulsion, as well as the grounds for encouragement.

## OBSERVATIONS ON THE PROVIDENCE MINES.

BY WILLIAM JORY HENWOOD, F.R.S., F.G.S.

[Communicated to the Royal Geological Society of Cornwall by SAMUEL HIGGS, Esq., the purser of the mines, and read by J. N. R. MILLET, Esq.]

These mines are in the parish of Lelant, and the portion of them described in this paper are worked in granite. Three chief veins form the subject of consideration—the Wheal Laity lode, which bears about 17° south of (true) west, dips south, is about 1½ foot wide, and is composed of quartz, felspar, schorl, tin ore, and in some places contains also vitreous copper ore, and iron pyrites. The Wheal Comfort lode, which has a direction of about 15° west of north, dips west, varies from a few inches to 6 feet in width, and consists of granite, tin ore, quartz, and capel; and in some portions, which abound in greenish and brownish felspar, the tin ore is abundant. The cross-course, or traw run 20° west of north, inclines west, and is about 1½ ft. in breadth, and its ingredients are mostly fine grained granite. Connected with the Wheal Comfort lode is one of the remarkable formations peculiar, it seems, to the St. Ives district, locally called carbonates. Its union with the lode takes place at about 105 fms. deep; it bears southward about 5° east of the lode, but at about 5 fms. below their separation it abuts on the granite, and is unseen at any greater depth. It is in some places as much as 2½ fms. wide, in others 4 or 5 ft. only; portions of it are 5 fms. in vertical extent, whilst parts of it are less than 6 ft. The Wheal Comfort lode crosses the Wheal Laity lode, and between that intersection and the appearance of the carbonates it is rich in tin ore; but on the latter separating from it the lode was much impoverished, whilst the carbonates was very productive. A remarkable difference occurs between the mineral composition of these masses, the carbonates consisting, besides tin ore, of quartz and schorl only. At some distance west of the carbonates the Wheal Laity north lode, at 130 fathoms deep, exhibits a remarkable, irregular excretion on its northern side of about 4 fms. in size, consisting of quartz, chlorite, and at times a little schorl, richly impregnated with tin ore, and at 150 fms. deep the same lode is rich in vitreous copper ore imbedded in chlorite. The Wheal Laity lode is intersected and at some levels is heaved by the Wheal Comfort lode; and whereas eastward of the crossing it is but a single vein, everywhere west it is in at least two, and sometimes in three, separate and distinct veins. As these branches of the Wheal Laity lode come in contact with the cross-course they are all heaved—the two larger from 12 to 15 fms., and the smaller about half that distance. The Wheal Comfort lode and the cross-course, though parallel in direction, have opposite inclinations, and fall together as they descend. At first they go down side by side for 3 fathoms; the lode then passes through the cross-course, and afterwards, though they have changed sides they continue, together for several fathoms on the line of its previous underlie; and at length they separate and each takes its own dip. The Wheal Laity south lode is at one spot heaved by a flooken, which reaches to neither of the other veins, and is confined to merely a few fathoms in height, even on the vein it heaves. The heaves exhibit almost an epitome of that class of phenomena; whilst a striking fact is that there are two parallel, though widely dissimilar formations (the Wheal Comfort lode and the carbonates), and another (the Wheal Laity lode) nearly at right angles to them, all productive of the same ore.

[The writer wishes this paper to be considered as merely supplementary to his description of the St. Ives district, and especially to the account of a like formation at the St. Ives Consolidated Mines. In the fifth volume of the Society's *Transactions*, which is wholly from his pen; and expresses his obligations to Mr. Higgs, the purser, and to Captain Philip Dunstan, the chief underground agent at the mines, for much valuable assistance kindly afforded him in every stage of his inquiry.]

**MR. STRUVE ON MINE VENTILATION.**—The Institution of Civil Engineers has awarded the Telford Medal, in silver, to Mr. William Price Struvé, C.E., of Swansea, for his valuable paper on "The Ventilation of Collieries Theoretically and Practically Considered," which was read on the 19th of November last, and discussed through the three following meetings. This paper is replete with sound practical information, and fully establishes the author's claim to the distinguished honour that has been conferred upon him. We understand that it is now in the press, and we hope, ere long, to gratify our readers by presenting them with a copy of it in our columns.

**THE BRITON FERRY IRON WORKS.**—These unfortunate rolling mills have, we understand, again relapsed into the possession of the original proprietors. Some parties in the neighbourhood have, however, temporarily resumed operations, thus giving employment to the numerous workmen dependent on these works for their daily bread.

**PREDICTION OF THE EXISTENCE OF GOLD IN AUSTRALIA.**—At the annual meeting of the Geological Society of Cornwall, Sir Charles Lemon (the president) observed, that in a letter which he received some time since from Sir Roderick Murchison, he stated that, from certain information brought before him with regard to the geological character of our South Australian colonies, his opinion was, that if the matter was fairly looked into, the probability was that considerable quantities of gold would be found in the colony, and if Cornishmen were sent out they would be the men to find it. In the *Transactions* of the Society, for 1848, Sir Roderick remarked, that from the structure, as described by Count Strzelecki, of the great north and south chain, which ranges along the eastern shores of Australia, he specially insisted on its striking resemblance to the Ural Mountains in direction, structure, and alluvia. Colonel Helmserson also recently suggested, that a careful search for gold in the Australian districts would, in all probability, lead to its discovery in abundance. The Russians had long colonised the Ural Mountains, and had for many years worked mines of magnetic iron and copper in solid rocks before the neglected shingle, gravel, and sand on the slopes of the hills and in the valleys were discovered to be auriferous. Sir R. Murchison advised any Cornish miner about to seek his fortune in Australia to apply his knowledge of the mode of extracting black tin from his own gravel to the drift and debris on the flanks of the great north and south chain of Australia, or any smaller parallel ridges of that great country. He also publicly addressed the Colonial Office on the subject of Australian gold in 1848, entreating that precautions might be taken to prevent disorders which might arise in consequence of its discovery.

The advices received by the last Overland Mail from the new tin workings on the island of Billiton mention that operations were being commenced with vigour, and very favourable reports of the prospects of the mine are understood to have been received, by parties interested in Holland, from the Baron Van Tuyl, who superintends the works. A considerable number of Chinese labourers had been imported from Singapore; and from the energy displayed, it appears likely that good accounts and a large return of tin, which is well known to exist in the island, will shortly reach Europe.

A further discovery of copper, near the village of Bad Axe, in the state of Wisconsin, was made accidentally by a party who was out tracking a deer, and who stumbled over a sharp point of some substance, rising above the surface of the ground, and which a moment's examination assured him was a piece of native copper. He dislodged the mass from its bed, and on taking it home, found it to weigh some 50 lbs. On the encouragement afforded by this discovery, a shaft has been sunk, and already 600,000 lbs. of ore have been taken out, mixed with native mineral, valued at \$60 per 1000 lbs.; and by "drifting ahead" in the crevice between the rocks, the vein is found to be of great value.

## THE STEAM-ENGINE.

That exquisite and unparalleled production of mechanical genius—the steam-engine—has now become an essential appliance to the absolute necessities of existence; it has been the means of adding innumerable enjoyments to the blessings of civilised life; it has certainly created new wants, but it has in every such case most abundantly supplied the pabulum for the appetite it had excited; it has supplied the place of the bone and muscle of the man, and reduced his labour to an easy and entertaining supervision. Some knowledge of a power so vast, and of such importance in the economy of human life is at least desirable, and few well-informed persons, whether connected with the engineering profession or not, but are anxious to obtain an insight into the principle by which this triumph of mind over matter performs its gigantic functions. There have, however, been considerable difficulties in the way of the general body of readers to obtain thoroughly correct views on this interesting subject; with the exception of really practical works, abounding with the necessary technicalities, algebraic calculations, and mathematical deductions, and a few small elementary works, there has not, to the best of our knowledge, been laid before the public any treatise of a sufficiently elucidative character, with the exception of a volume by Dr. Lardner, published more than 20 years ago, which went through seven editions, and which was the first attempt to present the history of the invention of the steam-engine, and an exposition of its structure and operation, in a form and style which should be intelligible to the public generally. It is with much pleasure we announce the publication of the eighth edition of this instructive work, which has evidently undergone such modifications as the progressive improvement since the last edition appeared, and the present mechanical arrangements and extended use of the steam-engine rendered necessary; it is presented in a form best calculated to convey to the general reader that degree of information respecting steam-power and its applications to land and marine locomotion, and general mechanical purposes, which most persons are desirous of possessing. It is written in language divested of mathematical and mechanical technicalities, and the details of its machinery, and the physical principles on which they depend, will be fully intelligible to those who seek for such information. The volume is divided into three parts, the first entering fully into the origin of the invention, and the earliest attempts at its application; engines of Savery and Newcomen; first inventions of Watt; invention of the expansive engine; the double-acting engine; cocks, valves, slides, and pistons; the boiler and its appendages; and the power and duty of engines. The second and third parts are for the most part new, and contain every information connected with marine and railway steam locomotion. We give the following extract as a specimen of the author's lucid and definite descriptive powers. On copper boilers, he says—

One of the remedies proposed for the evil consequences arising from incrustation is the substitution of copper for iron boilers. The attraction which produces the adhesion of the calcareous matter held in solution by salt water to the surface of iron has no existence in copper, and all the saline and other alkaline matter precipitated in the boiling water in copper boilers is suspended in a loose form, and carried off by the process of blowing down. Besides the injury arising from the deposition of salt and the incrustation on the inner surface of the boilers, an evil of a formidable kind attends the accumulation of soot mixed with salt in the flues, which proceeds from the leaks. In the seams of the boiler there are numerous apertures, of dimensions so small as to be incapable of being rendered staunch by any practicable means, through which the water within the boiler filters, and the salt which it carries with it mixes with the soot, forming a compound which rapidly corrodes the boilers. This process of corrosion in the flues takes place not less in copper than in iron boilers. In cleansing the flues of a copper boiler, the salt and soot which was thrown out upon the inner plates which formed the flues of the engine room, having remained there for some time, left behind it a permanent appearance of copper on the iron flooring, arising from the precipitation of the copper which had combined with the soot and salt in the flues. In this case the leaks from whence the salt proceeded were found, on careful examination, so unimportant, that the usual means to staunch them could not be resorted to without the risk of increasing the evil.

On the probable extension of steam-ships to the general purposes of commerce, the author says:—

Great as the progress of steam navigation has been within the last quarter of a century, much still remains to be accomplished before that vast agent of transport can be regarded as having been pushed to the limit of its powers. Its superior speed, regularity, and certainty, comparatively with sailing vessels, have naturally first attracted to it passengers, despatches, and certain descriptions of merchandise to which expedition is important, and which can bear a high rate of freight. The mechanical conditions which ensure expedition in long voyages, exclude, to a great extent, the transport of general merchandise, for a large part of the tonnage of the vessel is occupied by the machinery and fuel. The heavy expenses, therefore, of the construction and maintenance of these vessels must be defrayed by appropriating the profitable tonnage to those objects of transport alone which will bring the highest rate of freight. While the steamer, then, for the general purposes of commerce can be made to exceed the sailing vessel, in anything approaching to the ratio by which the goods train on the railway exceeds the wagon or canal boat, we shall soon see the ocean covered with such steamers, and the sailing vessel will pass from the hands of the merchant to those of the historian. To render steamers capable of attaining these ends, it will be evidently advisable to adopt measures to combine the qualities of a sailing vessel with those of a steamer. The ships must possess such steaming power as may give them that increased expedition, regularity, and punctuality, which, in the existing state of the arts, can only be obtained through that agency; but it is also important that they accomplish this without robbing them, to any injurious extent, of their present capability of satisfying the wants of commerce. No expedient appears to me so likely to accomplish this, in the present condition of the art, as one which would have for its object the removal of the paddle wheels now generally used, and the substitution of some description of subaqueous propeller. A great reduction in the dimensions of the machinery, and the surrender to the uses of commerce of that invaluable space which it now occupies within the vessel, are also essential. It is incumbent on the engineer who assumes the high responsibility of the superintendence of such a project, to leave the ship in the full and unimpaired enjoyment of its functions as a sailing vessel. Let him combine, in short, the agency of steam with the undiminished nautical power of the ship. Let him celebrate the marriage of the steam-engine with the sailing vessel. If he accomplish this with the skill and success of which the project is susceptible, he may fairly hope that his name will go down to posterity as a benefactor of mankind, united with those of Fulton and Watt.

It would not be doing justice either to the work or its author, were we to omit the contradiction of what he calls the absurd reports, imputing to him opinions as to the impossibility of the Atlantic voyage, which he states are precisely the reverse of what he did hold, and what he generally promulgated in public:—

It cannot be seriously imagined that any one who had been conversant with the past history of steam navigation could entertain the least doubt of the abstract practicability of a steam-vessel making the voyage between Bristol and New York. Nevertheless a statement was not only widely circulated, but generally credited, that I had publicly asserted that a steam voyage across the Atlantic was "a physical impossibility." Although this erroneous statement has been again and again publicly contradicted through various organs of the press, it continues nevertheless to be repeated. I shall, therefore, take this opportunity once more to put on record what I really did state on the occasion on which I am reported to have affirmed that the Atlantic steam-voyage was a physical impossibility.

After giving extracts from public reports of the meeting at Bristol, where the adverse opinion was said to have been expressed, and which certainly imply quite the reverse, the author says:—

What I did affirm and maintain in 1836 and 1837 was, that the long sea voyages by steam which were contemplated could not be maintained with that regularity and certainty which are indispensable to commercial success, by any revenue which could be expected from traffic alone, and that, without a Government subsidy of a considerable amount, such lines of steamers, although they might be started, could not be permanently maintained. Steam navigation had till then, as has been already explained, been confined to the narrow seas which separated adjacent countries, such as the Irish Channel, the German Ocean, and the Mediterranean. For such navigation steam-ships have great and numerous advantages over sailing vessels, more especially for the transport of passengers. In confined seas and in coasting, their superior safety was obvious. Independent in a great degree of the wind, a steamer fears no lee-shore. If pressed by stress of weather, she has that within her which in most cases will carry her into the safe shelter of any neighbouring port. Provided with convenient depots at short distances, she needs not to fill her tonnage with coals, and thereby limit the magnitude and power of her engines, or encroach upon the space which might be profitably occupied by passengers, or by objects of commerce. Supplied, therefore, with abundant mechanical power, she far outstrips all sailing vessels, and puts any such competition completely out of the question.

The author enters at considerable length into the circumstances under which steam navigation was then placed, in competition with the New York liners, and gives a most graphic and interesting history of the rise and progress of Atlantic steam fleets, the Post-Office contracts, and other important information connected with the subject. In conclusion, we can only recommend the volume to general perusal, confident that it will be found to embrace the whole field of steam engineering, except the practically instructive details, at which the author has not pretended to aim.

The contributions to the Exhibition, for which a prize medal was awarded to Mr. Joshua Byers, of Stockton, as producer and manufacturer, were—1. Lead ore from Grasshill mine, Teesdale.—2. Pig of refined lead.—3. Pig of common lead.—4. Pig of slag lead.—5. Silver extracted from the lead.—6. Litharge made from the lead.—7. Sheet lead, 5 ozs. per foot, and made to any weight per foot required.—8. Pipe lead, made from a ¼ to 4 inches diameter.

\* The Steam-engine, Steam Navigation, Roads, and Railways, Explained and Illustrated. By DOUGLAS LARDNER, D.C.L. London: Taylor, Walton, and Maberly.



## Original Correspondence.

## ORIGIN OF MAKING IRON WITH PIT-COAL.—No. II.

SIR,—It certainly appears singular that Mr. Dudley should (as stated in No. 1 of this series of papers) have seen a large lump of gold that was found in Scotland above 200 years ago, with a piece of white transparent spar adhering to it, a clear indication that it had not rolled far from its native bed—if, indeed, it had rolled at all. Here we have a parallel case to the recently-discovered gold veins or beds in California, where its matrix *in situ* is now pretty well ascertained to be crystallised silex. It would, therefore, be nothing very surprising to me were we to hear of a commencement of profitable gold digging in Scotland, or even in Wales; for, as the geological position of that metal appears to be between the upper beds of granite (i.e., in or upon gneiss) and the lowest beds of slate, we may search for it with some reasonable hope of success in many parts of Scotland, and in Wales, Cornwall, and Devonshire also, and likewise in Ireland. The dust and grain gold so often found in soils, sands, and rivers, evidently being water deposits, often many miles away from its native bed. To return to Dud Dudley—

My hope now is, that the Honorable and ingenious Corporation of the Mines Royall, will set the mines at work; that my invention, in which I have spent much time and charge in melting, smelting, extracting, refining, and reducing of mines and metals with pit-coal, sea-coal, and peats, and have made with the same fuel many hundred tons of good merchantable iron into cast works and bars; may by the inventor be enjoyed according to the Act of Parliament, 21, Jac. See the author can make it appear he hath been much obstructed by law-suits and the wars hitherto, but he brought to light, after all the sad sufferings of the author, whereby he may add up his new inventions what he conceives fit to be done. That not only this so exhausted kingdom may enjoy the benefit thereof, but also Scotland and Wales, which abound with coals, iron, stone, and mines of all sorts, minerals and precious stones, &c. Yet from England's granary, Scotland making no iron, and other territories, have their thorough supply, not only of iron, but of iron manufactures many, so hath Wales; yet might Scotland and Wales not only supply themselves, but supply His Sacred Majesty's other territories with iron and iron wares and steel also, by iron and steel made with pit-coal, sea-coal, and peat, and thereby be helpful unto themselves and England, and all plantations of His Majesty, on this side and beyond the line.

Thus ends Mr. Dudley's "epistle" to Parliament, after which we have the following address:—

To the Reader, especially of England, Scotland and Wales:—"The injury and prejudice done unto me and to this Island, my native country for the making of iron, in cast works and bars with pit-coal, sea-coal, peat and turf, and with the like fuel, to melt, extract, refine, and reduce all mines and metals, moved me in the negligence of better wits and pens to apologise for it; in this ensuing treatise, and believe me reader, 'twas no private or politic designe in my invention, but meer zeal, becoming an honest man, patriot, parentous and amicus, that engaged me (after many others failed) in these inventions, for the general good and preservation of wood and timber, which—

Eque pauperibus, locupletibus eque.

Therefore it concerns His Sacred Majesty, his High Court of Parliament, all his counsels, mariners, merchants, Royall and loyal subjects (the destruction of wood and timber) lay it to heart, and helping hands, upon fit occasions, in these so laudable inventions of making iron and melting of mines and refining of them with pit-coal, sea-coal, peat and turf; for the preservation of wood and timber for maintenance of navigation, men of war, the fishing and merchants' trade, which is the greatest strength of Great Britain, and all other His Majesty's kingdoms and territories, whose defence and offence next unto God, consists by his Sacred Majesty's assisting care, and view of his men of war, ships, experienced mariners, merchants, ordinance of copper, brass and iron armories, steels and irons of all sorts; both of bars, squares, and cast works, and which ought and may be supplied from Scotland and Wales by iron, copper, and brass, and made there with pit-coal, sea-coal, and peat; and which abound there and in England, also in Cornwall, Devonshire, Somerset, Gloucester, Stafford, Derby, York, Lancaster, Westmorland, Cumberland, are many copper mines, so is there in Pembroke, Carmarthen, Merioneth, and Denbys, are also very many rich copper mines in very many places in Scotland, at Sterling, at Dumfries, and many other places well known unto the author."

Now it must be clear to any moderately well-informed person that Dud Dudley knew pretty nearly as much 200 years ago with respect to the locality of mineral deposits in this country as most of our geologists and mineralogists do in the present day, and his notions as to the formation of "metals and minerals" will lose nothing in comparison with the best papers I have hitherto seen on the "filling of mineral veins;" and I think it will be shown, in rather strong colours, when we come to treat of the old smelter's metallurgical knowledge and practice, that we moderns are, on those points, by no means superior—if, indeed, we are equal to him; this, however, only corroborates the old adage, that all learning is not knowledge. We now come to Mr. Dudley's *Metalum Martis*, nearly the whole of which interesting and actually instructive work I will transcribe for your valuable Journal, interspersed with a few observations of my own, upon a few points where a comparison between the modern and the ancient method of iron smelting may be desirable:—

That Great Britain, with her men of war, fleets and shipping, have had in all ages, and in these latter ages, as great success at sea as any people whatsoever in the universe, cannot modestly be denied, in '88, overthrowing that Invincible Armada so long a preparing, and since other navies also; and whose armadas, navies, armies, and men, have been a terror to other nations; nay, her own grand magazines are the very granary from whence all his Sacred Majesty's kingdoms, dominions, and territories, both in the East and West Indies, on this side and beyond the line, they have their whole and thorough supply of shipping, men, arms, food and timber should decay still, and fall, the greatest strength of Great Britain, her ships, mariners, merchants, fishings, and his Majesty's navies and men of war, for our defence, and offence would fall us, which before, and since 88 made his Sacred Majesty's predecessors, Queen Elizabeth, and her Great Council, the then Parliament, to make laws for the preservation of wood and timber; especially near any navigable river; 1 Eliz. 15; 27 Eliz. 19; 28 Eliz. 3, 5; 23 Eliz. 5; all which laws, and others, for the preservation of wood and timber are still in force, but not duly executed; also King James, his Sacred Majesty's grandfather, and Prince Henry, for the preservation of wood and timber in this island, did in the 9th year of his reign grant his letters patents of privilege unto Simon Sturtevant, Esq., for 31 years, for the making of iron with pit-coal and sea-coal for the preservation of wood and timber of Great Britain so greatly then consumed by iron-works. This invention was by King James's command to be at large, put in print, which book did contain near a quire of paper in quarto, called *Simon Sturtevant his Metallica*, Anno 1612, May 22. Printed by George Eld, cum privilegio. After Simon Sturtevant could not perform his making of iron with pit-coal, or sea-coal, according unto his engagement, King James and Prince Henry caused him to render up his patent, and a new patent was granted unto John Robenson, Esq., who also was enjoined to write a book of his inventions, called *Robenson's Metallica*. Printed for Thomas Thorp, cum privilegio, May 15, Anno 1613. After John Robenson, Esq., had often failed with his inventions and great undertakings,—Gombleton, Esq., a servant of Queen Anna's, undertook (by patent) to perform the invention of making of iron with pit-coal, and sea-coal; but he being as confident of his invention as others, did erect his works at Lambeth, which the author viewed; and Gombleton falling, the learned and ingenious Doctor Jorden of Bath, the authors acquaintance, and sundry others obtained patents for the making of iron and melting of mines with pit-coal and sea-coal, for the preservation of wood and timber, all which inventions and endeavours to effect and perfect the said invention, though with many heretofore well known, to have wholly attempted the said invention, though with fruitless success. Having seen many of their failings I held it my duty to endeavour, if it were possible to effect and perfect so laudable, and beneficial, and also so much desired inventions, as the making of iron into cast works and bars, and also the melting, extracting, refining, and reducing all sorts of mines, minerals and metals, with pit-coal, sea-coal, peat, and turf, for the preservation of wood and timber, so much exhausted by iron-works of late.

Nantyglo, Oct. 27.

S. B. ROGERS.

[To be continued in next week's Mining Journal.]

## HYDRO-CARBON FIRE.

SIR,—The subject of "Anti-Smoke's" letter, in last week's Journal, will unquestionably be interesting to the inhabitants of large towns, who are desirous of living under a clearer atmosphere; but there is an application of the principle of the hydro-carbon fire of much greater value to the important interests which the *Mining Journal* represents. To this I am desirous, on the present occasion, of calling the attention of the mining community. In giving an exposition of Mr. Leighton's views on this subject, I shall begin with his account of the origin of the invention. When engaged in the alkali manufacture, a great amount of damage was done to the crops in the neighbourhood of the works, caused by the escape of muriatic acid. This occasioned him great distress and anxiety, being at the same time harassed by commercial and operative difficulties. Having accidentally discovered the formation of ammonia under peculiar circumstances, he resolved to make this the basis of a plan for the effectual prevention of damage from alkali-works. A train of untoward circumstances interfered with the completion of his plans at that time. One essential ingredient for complete success in his contemplated process being the use of a pure carbonaceous fuel, free from volatile matter, his attention was directed to anthracite coal, which led him into South Wales. Here he wasted much time, study, and ingenuity, deluded by misrepresentations, broken promises, and contracts never fulfilled.

Mr. Leighton has satisfactorily demonstrated his theory of the formation of ammonia. Although he tells me this has appeared in the *Mining Journal*, I will give it again, in as few words as possible, as I do not recollect seeing it myself, and I wish to give a full explanation of the principle. When sulphurets and pure carbonaceous matter, like anthracite, are acted upon by heat, a blast of air, and vapour of water, the resulting products are nitrogen, carbonic oxide, and sulphuretted hydrogen. If those are confined for a short space, and cooled down to a point at which sulphur will not ignite, nitrogen and sulphuretted hydrogen combine into sulphuret of ammonia; a large quantity of cold air being now thrown in, and intimately mingled, carbonic acid is produced, which, decomposing

the sulphuret of ammonia, forms carbonate of ammonia, and disengages the sulphur. Mr. Leighton's original intention was to generate ammonia, and throw it into fires, to meet the muriatic acid passing off from furnaces in which salt is decomposed in established works; but finding that the sulphur could be completely separated, he conceived the idea of collecting it and burning it, bringing the vapour or sulphurous acid to mix with the ammonia; and by throwing in heated air, to form sulphate of ammonia, and condense this by means of steam or water, he proposed to decompose salt in open furnaces, as at present, but using a solution of sulphate of ammonia instead of sulphuric acid. Not meeting with any support from the established manufacturers, he now contemplates the formation of new works for treating metallic sulphurets to form carbonate of ammonia, to be condensed by water, and making a cold saturated solution for decomposing salt to yield directly carbonate of soda and muriate of ammonia. The neighbourhood of the city of Gloucester seems the most eligible site for such establishments. Gloucester is becoming the centre of an extensive railway communication, linking together some of the most important districts of the kingdom. On one side salt is to be obtained on easy terms from Worcestershire; on the other the minerals of Cornwall, Ireland, Wales, and the Isle of Man.

I now beg to point out to the mining interest the value of the proposed plan. Metallic sulphurets will be made use of, thus furnishing a market for much that is now of little or no value. No part of the mineral will enter into the composition of the new manufacture, but the new process will separate volatile from fixed matters. All the volatile parts will be condensed and recovered in the chambers where the dry carbonate of ammonia is found, and the fixed parts will be recovered from the fireplace with the remains of the coal. Improved metallurgical processes will unquestionably be adopted, to turn to the best account all the component parts of the ores made use of; and thus, in time, the full price will be obtained for minerals, the value of each component part being taken account of in the aggregate. My object in this first letter being merely to direct the attention of the mining community to this subject, I leave the above to their consideration, and reserve further remarks for a future letter.

Oct. 27.

PRYATES.

## THE NEWTONIAN PHYSICAL LAWS OF THE ORBITS QUESTIONED.

SIR,—There is nothing that betrays the weakness of an argument more than the use of improper epithets; and when these are accompanied by questions totally irrelevant to the subject, in a loose style, they may be considered as unworthy of notice, and offensive to the readers. However, I beg to acquaint your correspondent, "W. C. O.," that practical men of science pay no regard to such phantoms of phantasmagorias; they deal only with facts, and thus prosper, leaving the metaphysical theorists behind in a mysterious world of their own creation.

As this question is brought forward, the public have a right to expect that the Newtonian doctrine will be supported and upheld, *in propria persona*, by one, at least, who understands the subject, and not by those who cannot discover the distinction between a problem in Euclid, on the properties of curves, and a physical question connected with defective forces.

No practical man of science has been able to demonstrate that an impulsive force, acting in one definite direction, deflected in its path by the constant action of a central force, will produce a circle with a uniform velocity, according to the established principles of describing the parallelograms of forces. The diagonal of the parallelogram of two forces represents the magnitude and direction of the compound; we cannot reverse the original direction of any one of the forces, and bring it diametrically opposite without destroying it, as two contrary forces balance each other, causing an equilibrium—i.e., a state of rest. In entering into these questions, we must always bear in mind the distinction which exists between *statics* and *dynamics*. In the former, it matters not how the sides of the parallelograms are made, whether slow or quick, by small quantities, or by large quantities. As long as the amount of the forces is represented by the length of the sides, the diagonal will represent the compound when in a state of equilibrium. The laws of dynamics are not confined to the extreme limits or the mere gross amount of the forces, but they embrace also the nature of their accumulation. We have to analyse the component parts, and consider them in connection with space and time.

The physico-mathematician will tell us that a body at A, impelled by a uniform tangential force towards B, and deflected from that line by a gravitating force towards C, will move to D in an arc, &c., as shown in the diagram.

The practical engineer, who has to carry on works of any magnitude, and has to be responsible for them, never trusts to assumptions; the elements of his theory are actual demonstrative proofs, experiments, and observations. The above would be reduced to its component elements, and then reason on the consequences. We require another tangential force at D, at a right angle to the former, to describe the under quadrant to complete a semi-circle; besides, in describing parallelograms connected with central forces, the rectangular are inadmissible; and when we apply the triangular or quadrangular lines with the constancy of the one force, and the evanescent character of the other, the assumption becomes totally irreconcilable to the laws of physics, and in contradiction to the axioms themselves on which they were founded. Mathematicians have a right to enjoy their own creed, as long as it is confined to themselves; but if any engineer can be found who believes such a doctrine, he will be a curiosity, and must be one of the perpetual motion seekers.—EVAN HOPKINS: London, Oct. 27.

## ON THE ELEMENTS OF NATURE.

SIR,—I frequently read your Journal, and take especial interest in the letters which it contains on scientific subjects, emanating, as they do, from practical men: it is with regret, however, that I perused that of Mr. S. B. Rogers in your last; a letter eminently unpractical, and containing most preposterous assertions as to the nature of "matter." His opinions might well be passed over without reply, but that they may prove dangerous from the tone of triumphant confidence in which they are expressed. Mr. Rogers says:—"Now let us *simplify* (!) a little. My idea is, that matter has no basis (although perhaps I may not go so far as Bishop Berkeley on that point), but is itself the basis of all natural things." In other words, that which is baseless (i.e. nothing) is the basis of everything! Simple enough, truly, and amply contradictory of the old saying, "*Ex nihilo nihil fit*!" This, Mr. Rogers tells us, is the "first letter of the alphabet" he wishes his antagonist, Mr. Prideaux, "to become familiar with; and to do so effectually, it may, perhaps, be necessary to unlearn many things that are at present taught as philosophy or philosophical truths." For instance, Mr. Prideaux "takes it for granted that matter has properties, and he names resistance as one of them, but the point is untenable; for matter is perfectly passive at all times and places, and cannot resist even the comparatively feeble powers of man, under no circumstances whatever" (I quote literally). Mr. Rogers overlooks the great fact that there is no such thing in inanimate nature as active resistance, while passive resistance is the universal and invincible attribute of all matter. He maintains that matter has no property of resistance, because it is always passive, or, in other words, because it is in that state in which resistance is most insuperable! Simple enough, certainly!

But this is not all. He continues:—"To conceive the existence of matter without properties is no greater effort of mind than to presuppose the contrary; but the latter point can only be maintained by giving an instance where matter is shown to possess a single inherent property of any kind!" What has the effort of mind to do with the truth of the idea conceived? Nothing is easier than to imagine a false theory, but the facility with which it is imagined will not make it true. As to the challenge, to give an instance in which matter is shown to possess a "single inherent property of any kind,"—if Mr. Rogers dislikes "resistance," let me say "indestructibility." This is a property, or attribute, inherent in all matter; the feeble powers of man may combine oxygen and hydrogen to form water; may make this into ice, or steam, and again decompose it into its primitive elements: these again may be combined and recombined in a thousand definite ways, but still they remain unchanged, indestructible; their passive resistance triumphs over the chemist. Is not this an "inherent property" of matter? Let us see what the immortal Newton says on this point:—

"It seems probable to me that God, in the beginning, formed matter in solid, massy, hard, impenetrable, moveable particles, of such sizes and figures, and with such properties, and in such proportion to space, as most conduced to the end for which He

formed them: and that these primitive particles, being solids, are incomparably harder than any porous bodies compounded of them; even so very hard as never to wear or break in pieces; no ordinary power being able to divide what God himself made one in the first creation."

This needs no "simplifying!"

Boscovich's theory is in favour of giving up matter itself rather than its properties, so essential are they to the explanation of all natural phenomena! I am not vain enough to suppose that I shall have convinced Mr. Rogers of his errors, but I do hope that my remarks may expose the fallacy of his speculations to such of your readers as might be disposed to adopt them. Philosophers will not reject readily the sublime and humble words of Newton: no! the Newtonian theory will remain for them unshaken; while the "simplified," or simpletonian, will be the creed of simpletons!—NORRIS F. DAVEY: Romford, Oct. 27.

## REAL ELEMENTS OF NATURE.

SIR,—I am unwilling to leave Mr. Rogers's appeal unnoticed, although able only to repeat my disqualification; "not seeing my way clear in this matter." The copper sheathing was a quite different case: a direct matter of fact business; in which, having had opportunities which could not have occurred to any former chemist (and I fear cannot again to myself or any other), I was led to hope that practical benefits might result, both to the sheather and the smelter, and so to the great trade of the country.

But, in Mr. Rogers's speculation, I can discern, so far, only (meaning neither disrespect nor discouragement) a fanciful analogy between straight and curved lines and spirit and matter, which, however amusing, appears too subtle and slippery to occupy the few remaining days of an almost superannuated practical chemist. When, however, it may suit Mr. Rogers to bring forward recognised facts and tangible inductions, in support of his hypothesis, I hope to join him in the discussion; not to oppose or expose, but to draw out and expand his arguments and illustrations.

Oct. 28.

J. PRIDEAUX.

## SUBMARINE TELEGRAPH WITHOUT WIRES.

SIR,—A gentleman at Portsmouth proposed, through your columns, to carry the electric influence for telegraphic purposes across rivers and channels of water, without the aid of wires; and as he conceives the idea to be novel, I write to say that the same thing was tried, with partial success, by Morse, in America, some years since. A full account, with illustrative diagrams, will be found in *Vail's American Telegraph*, 1845.—BETA.

Oct. 28.

## WHITE'S PATENT WATER-BALLAST.

SIR,—As you have done much in the promulgation of the scheme of patent water-ballast and pumps, I thought the enclosed log of Captain Blackett might be interesting to your readers. From it you will observe that one of the advantages alluded to in the patentee's pamphlet has been successfully carried into effect—placing the ballast in excess upon the windward side of the ship—thus carrying more canvas, and enabling an old flat-bottomed collier to outlast her competitors, many of them of the most modern construction. The rapidity with which the water can be passed from one side to the other, as also introduced from the outside—that is, by the latter means, at least 4 tons per minute with the two pipes, allows this operation with perfect safety: in a steady breeze it is most advantageous. The captain availed himself also of this facility in letting out and in the ballast, as specified in the log. The pump was also drawn occasionally, for the purpose of examination, and the boxes found perfectly clean. The bags were quite perfect—no chafe; and, indeed, after standing for exhibition for months, and after three voyages, two of them with very heavy winds, they are absolutely better now than when first put into the ship. This is said advisedly; for at first there was a trifling sweating, whereas now there is none: they have, in fact, undergone a process of wear and tear that, if legitimately contracted, would have more than repaid already the capital required for pumps, bags, and whole apparatus.

Newcastle-upon-Tyne, Oct. 27.

JAMES KIRK.

## BRIG "BENTON," FROM LONDON TO NEWCASTLE.

RALPH BLACKETT, MASTER.

Date.	Winds.	Extract from Log.
Oct. 15 ..	W.	At 4 P.M. coals all out; at 5 o'clock unmoored, and left the Pool; at 8 P.M., the night being dark, brought up at Blackwall, and lay all the night.
" 16 ..	W.N.W.	At 8 A.M. got under weigh, and in going down the River laid the ballast-bags down, and having the apparatus all ready for filling, in case the wind freshening; at 7 P.M. brought up at the Nore—night very dark—took in about 18 tons of ballast.
" 17 ..	W.N.W.	The fore part of the day weather moderate; at 10 A.M. got under weigh, and ran down the Swin—the wind fair, and carrying all sail, having only 18 tons of ballast. At midnight came through Yarmouth Roads, with light wind from the west.
" 18 ..	W.	The fore part of the day, the breeze freshening, filled the bags—that is, to upwards of 50 tons. At 10 A.M. double-reefed topsails—stowed the jib and trysail—the wind strong from the west—reduced the ballast on the lee side—filled two trimming bags to windward. At midnight came round Flamborough Head, with a strong gale from the west. Passed several ships going northward.
" 19 ..	W.	Strong gale from the west. At 9 A.M. Sunderland bears west—took a steam-boat, towed into Shields, and brought up at the New Quay, the weather being moderate.

NEW SAFETY-LAMP.—At the Institution of Mechanical Engineers, Mr. S. H. Blackwell exhibited an "Improved Davy-lamp," the invention of M. Eloin, mining inspector, of Belgium: the new lamp and one of the regular Davy-lamps, both lighted, were shown, and the contrast was very great, the new lamp having about six times the illuminating power of the original one. After premising that the introduction of this lamp to this country was one of the products of the Great Exhibition, as it was exhibited there, and there it came under the notice of Mr. Blackwell, he proceeded to contrast the advantages over the old lamp. The principal defects of the common Davy are—first, deficient light, rendering the collier always unwilling to use it unless compelled by the presence of a highly explosive atmosphere; second, liability of injury to the gauze of the cylinder, either from a blow from a pick, fall to the ground, or otherwise; third, the possibility of a current of explosive atmosphere being carried through the gauze cylinder, either by the swinging of a lamp in the hand of a person when walking, or by its being exposed to the powerful "blowers of gas," which are sometimes given off with great force; and fourth, the heating to redness of the gauze, by which explosions actually take place, not from the passage of flame through the gauze, but by the actual contact of the explosive atmosphere with the heated wire. This danger is often increased by the presence of particles of coal dust, which, floating in the air of the mine, attach themselves to the gauze, and also from the deposit of soot on the gauze (arising from the imperfect combustion of the oil), which in the common Davy-lamp always gives off a dense column of smoke. In the lamp of M. Eloin all these defects are obviated. First: In reference to light—the cylinder above the flame is closed, and air admitted only below, through a narrow breadth of gauze; but the air which is admitted is brought into actual contact with the flame by the application of the principle of the solar lamp, and thus perfect combustion is produced, giving off light equal to at least five or six ordinary Davy-lamps. The light produced is one which the collier would prefer to that of any candle from its greater intensity, and from the perfect combustion of the oil no smoke whatever is given off. Second, as to the liability of injury to the gauze, this is obviated by using first a strong short cylinder of glass, through which the light passes, capped above the flame with a brass or iron cylinder, which cannot be injured except by actual violence. It might be supposed that the glass portion of the cylinder would be liable to accident; but in practice this is not found to be the case; bound at top and bottom by a strong brass ring, if it were to crack, either from a blow or from unequal expansion by heat, no danger would result, as the pieces into which it would be separated would still be held together with the brass bindings. Third, the closed nature of the cylinder entirely prevents the passage of an explosive atmosphere by any current of air. Fourth, all danger by the heating to redness of the wire gauze is entirely removed. A brass shade is attached to, and made to slide upon, the rods surrounding the glass portion of the cylinder, by which the light can be directed downwards if wished. The cost of a highly-finished lamp in Belgium is about 7 francs, and its weight, though greater than the ordinary Davy, is not at all objectionable. Mr. Blackwell concluded by remarking that M. Eloin had generously allowed his invention to be used in England freely. He (Mr. Blackwell) was about to introduce it into the district, and he had no doubt that it would speedily become as popular as it undoubtedly deserved to be. The paper and the exhibition of the lamp seemed to create considerable interest in the meeting.—*Birmingham Journal*.

At the West Riding Geological and Polytechnic Society, our correspondent, Mr. B. Biram, of Wentworth, gave an account of the application of his fan in the ventilation of Elsecar Colliery, and exhibited a beautiful model of the fan. In the course of his remarks, Mr. Biram suggested the adoption of a lamp in mines, having an opaque back with a reflector, for the purpose of throwing light where it was required.

The rope making machine, sent to the Exhibition by J. Crawhall, Esq., of Newcastle, to which a prize medal was awarded, has been sold, through B. Fothergill, Esq., of Manchester, to the Prussian Government, to deposit in their museum at Berlin.—*Gateshead Observer*.



## LITERARY NOTICE.

*Statistics of British Commerce: intended as a Compendium of the Production, Manufacture, Imports, and Exports of the Traffic of the United Kingdom in Agriculture, Minerals, Merchandise, &c.* By BRATHWAITE POOLE. London: W. H. Smith and Co., and Simpkin, Marshall, and Co. Liverpool: George McCorquodale and Co., and Webb and Hunt.

This interesting and elaborate Commercial Encyclopedia, the three first numbers of which we have before noticed, is at length completed by the appearance of the fourth, and presents to the trading community, to railway directors and officials, and to others interested (and who is not?) a mass of statistical matter, relative to the productive powers of the country, its exports, imports, and manufactures, which is not to be found in any other work extant. From the introduction to the volume, which is appended to the fourth number, we find our produce and manufactures amount to 290,000,000 tons in weight, and 600,000,000 sterling in value annually, of which the agricultural alone is 120,000,000 tons and 24,000,000 sterling, the farming stock on hand being 200,000,000. The imports amount to 6,000,000 tons and 100,000,000 sterling, of which 250,000 tons, equivalent to 9,000,000, are re-exported. The exports of British and Irish produce and manufactures from the United Kingdom amount to 5,900,000 tons, equal to 65,000,000 sterling. Mr. Poole shows that out of this (in round numbers) 300,000,000 tons of merchandise, after deducting therefrom the proportion not carried either by sea, canal, turnpike road, or railway, there is at least one-half applicable to those means of conveyance, of which, although the most rapid, safe, and economical mode of transport, the railways in 1850 carried only 15,000,000 tons, evidencing an ample additional amount of traffic yet obtainable, sufficient to add from 14 to 21 per cent. to dividend. In the fourth number are some excellent articles on salt, shipping, silk, slate, soap, sugar, tin, wines, wood, &c., some of which we shall give as separate articles in full. This compilation must have been attended by considerable difficulty, labour, and expense, although the author obtained much assistance from the Boards of Trade, Customs, and Excise, the Statistical Society, and numerous private companies, merchants, manufacturers, and others, which was found highly serviceable. Upon the whole, a volume has been produced containing a selection of most important matter, and which no one in the slightest degree interested in trade, commerce, railways, and shipping, should be without.

**GRAVES'S CONICAL SURFACE-PACKED SLEEPER CHAIR.**—This arrangement consists of a casting, something of the shape of an inverted basin, on the top of which is the chair; these are laid continuously along the line, at certain distances, to receive the rails, and thus dispense entirely with wooden or other sleepers; and there is a hole at the top, by which the ballast can be rammed home and the sleeper adjusted. The advantages claimed for them are, a saving in the first cost for materials alone of from 200L. to 600L. per mile—the length of time they will last without requiring to be replaced—the facility with which a faulty rail can be replaced—the peculiar shape, which prevents a possibility of lateral motion, from the hold it has on the ground. They have been now upwards of four years in use on the Lancashire and Yorkshire line, where they have given the utmost satisfaction, and we understand Mr. R. Stephenson has decided to employ them on the Egyptian Railway, 100 miles in length, from Alexandria to Cairo, for which purpose an order has been received by the proprietors for 13,000 tons.

**WEST WHEAL JEWEL MINING ASSOCIATION.**—The Resolution passed at the Special Meeting of the shareholders, held on the 3d day of June last, for the purpose of raising additional capital, by the issue of Preference Shares of 30s. each, not having been responded to, to the extent required—Notice is hereby given, that a SPECIAL GENERAL MEETING of the shareholders will be HELD at the offices, as under, on Monday, the 17th day of November next, at Twelve o'clock, to rescind the said Resolution, and to propose, in lieu thereof, to raise the required capital upon the existing shares.

By order of the Board of Directors and Committee of Management,  
57, Old Broad street, Oct. 29, 1851. WM. NICHOLSON, Secretary.

**IMPERIAL BRAZILIAN MINING ASSOCIATION.**—Winchester-house, Broad-street, London, October 27, 1851.—Notice is hereby given, that the HALF-YEARLY GENERAL MEETING of the proprietors of shares in this Association will be HELD at the London Tavern, Bishopsgate street, on Thursday, the 20th of November next.—The chair will be taken at Two o'clock precisely.

GEORGE THOMAS, Acting Director.  
N.B.—The auditor's statement may be seen at the office three days before the above meeting.

**AVE MARIA GOLD QUARTZ MINE, DISTRICT OF MARIPOSA, CALIFORNIA.**—Applications for shares in this mine are to be made at the offices of the Association, 114, Bishopsgate-street-w/lin (where all particulars may be had); to Messrs. Watson and O'Neil, St. Michael's-alley, Cornhill, London; Mr. John Davies, 38, Tower-buildings, Liverpool; and Messrs. Hughson and Dobson, 16, Royal Exchange, Edinburgh.

**WEST MARIPOSA GOLD QUARTZ MINE COMPANY, MARIPOSA DISTRICT, CALIFORNIA.**—Under a located Lease direct from the Hon. Colonel FREMONT.

On the "Cost-book" Principle, and a Charter to be applied for from the United States Government.—No Deed of Settlement has to be signed.

COMMITTEE OF MANAGEMENT.  
Sir RICHARD JENKINS, G.C.B. JOHN GREENE, Esq., M.P.  
AMBROSE MOORE, Esq. GEORGE M. MURRAY, Esq.  
DOMINICK DALY, Esq. Sir EDWARD BELCHER, C.B.

EDWIN LANKESTER, M.D., F.R.S.  
With power to add to their number.

BANKERS—Messrs. Masterman, Peters, and Co.  
SOLICITORS—Messrs. Hughes, Kearsey, and Masterman.

BROKERS—Mr. T. Uzielli, No. 75, Old Broad-street; Mr. John Short, Hercules-passages, Old Broad-street.

SECRETARY—Mr. George Huxley.  
OFFICES.—No. 4, ADAM'S-COURT, OLD BROAD-STREET.

This Company is formed for the purpose of working one of the richest veins of auriferous quartz yet discovered in the Mariposa district, which is the very centre of the gold quartz mining operations; and no better idea can be given of the value of this grant, than by stating that it has been located on the same vein, and to the west of the celebrated Mariposa Company's mine.

The property has been taken possession of by the lessee, and working has commenced—confirmation of the possession is given by Colonel Fremont's local agent at the Mariposa, and the documents of title are under verification by the Hon. Mr. Abbott Lawrence, the American Minister in London.

The vein of quartz, which extends the whole length of the allotment, and averages 6 feet in thickness, has been opened in various places, and is estimated to contain at least 100,000 tons; and the specimens now lying at the offices of the company, and which were collected from the openings made in the vein by the lessee, are of various degrees of richness; and two specimens which have been assayed by Messrs. Johnson and Matthiey, of Hutton Garden, as the request of the company, showed the following results:—

Assay Office, 72, Hutton Garden, 24th October, 1851.

We hereby certify that we have examined a box of auriferous quartz, handed to us on behalf of the West Mariposa Mining Company, from which collection we have selected two specimens (one rich, the other poor), and our assay presents the following results:—

Weight of poor specimen assayed ..... 11 ozs. 9 dwts. 18 grs.

Produced gold ..... 0 3 17

And, supposing a weight to be of equal quality, it would produce 385 ozs., which at 70s. per oz., would be equal to £1347 10s., less the expense of separation.

Weight of rich specimen assayed ..... 17 ozs. 12 dwts. 0 grs.

Produced gold ..... 3 15 9

And, supposing a ton weight to be of equal quality, it would produce 6995 ozs., which at 70s. per oz., would be equal to £24,482 10s., less the expense of separation.

Presuming, therefore, at the most moderate calculation, that the quartz rock in this vein is of the same value of £1347 per ton, the following will show the approximate result of the operations upon a moderate scale. Supposing machinery to be erected, which would crush only 20 tons of quartz per day, this would, at the rate of 200 working days in the year, produce 4000 tons, which at the estimate given above (of £1347 per ton), would yield the enormous sum of £5,388,000 sterling per annum, from which would have to be deducted the royalty of one-sixth to Colonel Fremont, and the expenses of reduction incidental to the operations of the company. It will be seen, therefore, that a very large dividend may be expected by the shareholders—such, in fact, as few mining operations have ever presented to the capitalist.

In addition to auriferous quartz already alluded to, the lease conveys a grant of 100 acres of agricultural land, on which may be erected the buildings necessary for the works, and the residence of the miners and workmen employed, which land has also been selected.

The country is well watered and timbered, and the lessee has the right to cut down timber for all the purposes of the company. The mine is situated within half a mile of the city of Mariposa, whence there is a good road of 90 miles to the city of Stockton. Steamers, of 400 tons burden, can reach Stockton from San Francisco by the River San Joaquin in 12 hours. Thus the carriage to and from the mine will be easy and inexpensive.

A conditional contract has been entered into for the purchase of this valuable lease, and the lessee agrees to accept payment entirely in shares of the company. The lessee also stipulates, that if in the first year of the company's operations, the company shall realise a net divisible profit of £100,000, he shall receive 10 per cent. of the next year's net profits; but if such 10 per cent. should exceed £10,000, he is to receive no more than that sum.—The lessee also agrees by his contract to deposit £2000 of his purchase money in cash, or shares, with the committee, until advice has been received from California, intimating that the company's agent has been placed in full and complete possession of the mine, and of the adjoining 100 acres, and the necessary formalities have been carried out for the due completion of the title.

The committee pledge themselves to use their best endeavours that none but the most able and experienced persons shall be entrusted with the management of the company's affairs in California; and being determined on their part to use every effort which will aid in the construction of machinery, and science in the separation of the ore, can suggest, and to keep the expenses within the limit of the capital subscribed, they fairly hope to make this one of the most profitable undertakings ever offered to the mining adventurer.

The company will be conducted upon the Cost-book Principle, until a Charter of Incorporation be obtained, and which it is intended shall be applied for upon the meeting of the States' Congress, in January next.

No Deed of Settlement will be required. The regulations of the company for administering its affairs will be entered in the cost-book.

The committee will make arrangements to pay dividends in London, Paris, and New York. Applications may be made to the secretary, at the company's offices: also to Mr. T. Uzielli and Mr. J. Short.

**WEST MARIPOSA GOLD QUARTZ MINE COMPANY.**—NO APPLICATIONS FOR SHARES WILL BE RECEIVED AFTER SATURDAY, the 8th of November, and the Committee of Management will not allot shares to applicants unless the references are satisfactory.

**ED. J. DENT** has REMOVED from 82 to 61, STRAND (being 21 doors nearer to Charing-cross, and directly opposite Bedford-street), and solicits an INSPECTION of his extensive STOCK of CHRONOMETERS, WATCHES, and CLOCKS, also, at No. 35, COCKSPUR-STREET, and No. 34, ROYAL EXCHANGE (Clock Tower area).

## GOVERNMENT SCHOOL OF MINES, AND OF SCIENCE APPLIED TO THE ARTS. Museum of Practical Geology.

The INAUGURAL and INTRODUCTORY LECTURES are arranged as follows:—

THURSDAY, 6th November, at Three o'clock ..... GENERAL INAUGURAL, By Sir HENRY DE LA BECHE, F.R.S., &c.

FRIDAY, 7th November, at Eleven o'clock ..... CHEMISTRY, By Dr. LYON PLAYFAIR, F.R.S.

MONDAY, 10th November, at One o'clock ..... NATURAL HISTORY, By EDWARD FORBES, F.R.S.

TUESDAY, 11th November, at Eleven o'clock ..... MECHANICAL SCIENCE, By ROBERT HUNT, Keeper of Mining Records.

The LECTURES upon GEOLOGY, by ANDREW C. RAMSAY, F.R.S.—MINING and MINERALOGY, by WASHINGTON W. SMYTH, M.A.—and METALLURGY, by Dr. PERCY, F.R.S., will COMMENCE on the 6th of JANUARY, 1852.

HENRY T. DE LA BECHE, Director.

## LIVERPOOL COLLEGE OF CHEMISTRY.

Professor—Dr. SHERIDAN MURPHY, F.R.S.E.

STUDENTS are INSTRUCTED IN EVERY BRANCH OF THE SCIENCE.

Fees for Analysis or Assays may be had on application, with full prospectuses.

## STEAM TO INDIA, CHINA, &amp;c.—Particulars of the regular MONTHLY MAIL STEAM CONVEYANCE.

AND OF THE ADDITIONAL LINES OF COMMUNICATION, NOW ESTABLISHED BY THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY.

with the EAST, &c. The Company book PASSENGERS, and receive GOODS and PARCELS, as heretofore, for CEYLON, MADRAS, CALCUTTA, PENANG, SINGAPORE, and HONG KONG, by their steamers, starting from SOUTHAMPTON on the 20th of every month, and from SUEZ on or about the 10th of the month.

One of the Company's first-class steamers will also be dispatched from Southampton for Alexandria, as an extra ship, on the 3d of November next, in combination with extra steamers, to leave Calcutta on or about the 30th October. Passengers may be booked, and goods and parcels forwarded by these extra steamers to or from SOUTHAMPTON, ALEXANDRIA, ADEN, CEYLON, MADRAS, and CALCUTTA.

BOMBAY.—The Company will likewise dispatch from Bombay, about the 1st November next, and every alternate month thereafter, a first-class steam-ship for ADEN, to meet here the Company's ships between Calcutta and Suez; and at Alexandria one of the Company's steam-ships will receive the passengers, parcels, and goods, and convey them to Southampton, calling at Malta and Gibraltar.

But PASSENGERS, PARCELS, and GOODS for BOMBAY and WESTERN INDIA will be CONVEYED THROUGHOUT from SOUTHAMPTON in the Mail steamers, leaving Southampton on the 20th of October, and the corresponding vessels from Suez to Aden, at which latter port a steam-ship of the Company will be in waiting to embark and convey them to Bombay.

Passengers for Bombay can also proceed by this Company's steamers of the 29th of the month to Malta, thence to Alexandria, by Her Majesty's steamers, and from Suez by the Honourable East India Company's steamers.

MEDITERRANEAN.—MALTA: On the 20th and 29th of every month.—CONSTANTINOPLE: On the 29th of the month.—ALEXANDRIA: On the 25th of the month.

SPAIN AND PORTUGAL.—Vigo, Oporto, Lisbon, Cadiz, and Gibraltar, on the 7th, 17th, and 27th of the month.

N.B.—Steam-ships of the Company now ply direct between Calcutta, Penang, Singapore, and Hong Kong, and between Hong Kong and Shanghai.

For further information and tariffs of the Company's recently revised and reduced rates of passage-money and freight, and for plans of the vessels, and to secure passages, &c., apply at the company's offices, No. 122, Leadenhall-street, London; and Oriental-place, Southampton.

## TO MINE PROPRIETORS, WATER-WORK AND LAND-DRAINAGE COMPANIES, CONTRACTORS, MANUFACTURERS, AND OTHERS.

## GREAT BRITAIN STEAM-SHIP.

The PROPRIETORS of this SHIP desire TENDERS for the WHOLE (or for any definite section, that would not prejudice the entirety of the remainder) of her STEAM MACHINERY, as originally constructed, consisting of FOUR 88-hp CYLINDERS, of 6-foot stroke, with pistons and rods, air-pumps and condensers, connecting-rods and guides, and all the detail of valve-gearing, necessary to render each pair of cylinders complete in themselves, from the pistons to the crank-pins.

Apply to Mr. Croome, civil engineer, or Capt. Mathews, on board the vessel, Sandon Graving Dock; or Gibbs, Bright, & Co., Liverpool.

## THE PATENT WATER-BALLAST STOWAGE BAGS

and PUMPS having BEEN TESTED, and met the approval of practical men, the Public is respectfully informed that all is now prepared for FITTING UP SHIPS, by application to Mr. KIRK, at the Works, GIBSON'S BUILDINGS, NEWCASTLE-UPON-TYNE, where a pamphlet and illustrations may be obtained by, or forwarded to, parties, and where all inquiries will be fully replied to.—Newcastle-upon-Tyne, Aug. 15, 1851.

## THE APPOLO CENTRIFUGAL PUMP.—H. and M. D.

GRISSELL, of the Regent's Canal Iron-Works, London, beg to inform landed proprietors and gentlemen connected with drainage, that they are now prepared to SUPPLY this most useful PUMP, of any required size, and at a reasonable cost. A very large one may be seen at work, at Sutton-bridge, near Wisbeach, employed upon one of their contracts at the South Holland Sluice, being the discharge of a drain which receives waters of 30,000 acres. Small steam-engines can also be supplied, if required.

## WEIGHING MACHINES AND WEIGHBRIDGES.

HENRY POOLEY and SON beg to call the attention of Engineers, Railway Companies, Manufacturers, and others, to their AGENCY and DEPOT in LONDON, where all their different MACHINES, as shown in the Exhibition, and for which the Prize Medal was awarded, MAY BE SEEN, and prices, and any further information required, will be given.

Apply to Mr. James Holgate, No. 9, Arthur-street West, London-bridge.

MANUFACTORY, LIVERPOOL.

## NEW LOCOMOTIVE PASSENGER ENGINES.—TO BE

SOLD CHEAP, a powerful superior PASSENGER ENGINE, with tender, complete, of the best materials and workmanship, 16-inch cylinders, 30-inch stroke, 7-foot driving wheels, copper fire-box, &c.—Also, a TANK LOCOMOTIVE, 12-inch cylinders, 18-inch stroke, 4 feet 6-inch driving wheels, &c.

For particulars and price apply to Thomas Wright and Co., engineers and railway furnishers, No. 9, George-yard, Lombard-street, London.

## REED'S IRON RAILWAY CHAIRS.—(PATENT SEALED OCTOBER 16, 1845).

TO IRONFOUNDERS AND CONTRACTORS.—The continuous IRON RAIL is adjusted on the roadway, without being keyed into chairs, which are dispensed with; and the IRON BLOCK CHAIRS, where rails are used, are made to supersede the use of stone and timber, forming an entire PERMANENT IRON RAILWAY. The Chairs have been laid on the Newcastle-upon-Tyne and Carlisle Railway for four years, with perfect satisfaction. Their superiority over other chairs, used in combination with stone and timber, is evident, and have the advantage of expedition in adjustment, economy in price, and unquestionable greater durability.

The above improvement in railways comprise an entire iron construction, and have priority over other patents for a similar formation.

The Patentee is ready to GRANT LICENSES on payment of a moderate tonnage royalty, or will treat for the absolute SALE of the PATENT, with all claims for infringement.—Apply to Mr. S. Reed, Bank-buildings, Newcastle-upon-Tyne.

## TO IRONMASTERS, RAILWAY DIRECTORS, ENGINEERS, AND FOUNDERS.

The SUBSCRIBER having been appointed SOLE AGENT in LONDON for the SALE of MR. STIRLING'S PATENT IRON, and desiring to intimate that he is prepared to SUPPLY Railway Companies, Engineers, and Founders, with the PATENT MALLEABLE and TOUGHENED CAST-IRON, and that all orders addressed to him for these, and also for RAILS, with Hardened Surfaces, shall have his prompt attention.

Specimens of the different Irons shown, and every information afforded, on application. Information as to the terms of License under Mr. Stirling's Patents will be given by the Subscriber, and also by Mr. JEE, G.E., 6, John-street, Adelphi. A. MACNAUGHT.

OFFICES.—2, Queen-street-place, Upper Thames-street.

WAREHOUSES.—Paul's Wharf, 25, Upper Thames-street.

## STIRLING'S PATENTS FOR IMPROVEMENTS IN

IRON.—1. TOUGHENED CAST-IRON, which is double the strength of ordinary cast-iron, and only 10s. to 12s. per ton extra.

2. ANTI-LAMINATING IRON, for RAILS and TIRES, &c., at an extra price of from 7s. 6d. to 10s. per ton. 3. IMPROVEMENTS in the MAKING of WROUGHT-IRON—saving one process to the manufacturer.

The following Iron Manufacturers are duly LICENSED to MAKE the IRON:—

Messrs. BAIRD'S ..... Gartsherrie, Glasgow.

THE CLYDE IRON COMPANY ..... ditto ditto

THE FORTH IRON COMPANY ..... ditto ditto

THE HESLEY COMPANY ..... Tipton, Staffordshire.

Messrs. LLOYDS, FOSTER, & CO. .... Walsley, Walsley.

Mr. JOHN WILSON ..... Dundee, Glasgow.

AGENTS.

Messrs. W. & J. H. JOHNSON, 166, Buchanan-street, Glasgow, and 20, St. Andrew's-square, Edinburgh.

Further particulars may be obtained on application to the agents; or to Mr. JEE, civil engineer, No. 6, John-street, Adelphi, London.

## RAILWAYS.—With an abundant harvest, cotton, and colonial

produce at one half the prices of last year, and railway calls, comparatively speaking, all paid up, it follows that the already large surplus capital now awaiting employment must necessarily increase. The exchanges are everywhere becoming more favourable for this country. The California and Australian gold discoveries will also add to the abundance of money. Hence the causes of an approaching improvement in the value of public securities, Capitalists who seek profitable investments, unattended with risk, should act only upon the soundest information. Price seldom indicates the true value of railway property. Hence many shares are frequently as much above as others are below their real value—the market price of the day being ruled more by the present supply and demand, and the operations of speculators, than by any reference to the intrinsic merits of the property. The bond *de* ultimate value of a railway depends upon its costs, traffic, and expenditure; the probabilities of competition or alliance with neighbouring companies, the requirements for additional capital, and other causes wholly irrespective of the merely speculative feeling of the day. Calculations, founded upon these considerations, show what shares at the current market price may be bought, sold, or exchanged with advantage. But the selection of that stock which is the most eligible requires data that can only be arrived at by those who give an undivided attention to the subject.

Every information afforded to capitalists wishing to invest or to exchange their securities, it is incompatible with their duties as agents to speculate on their own account, adhere exclusively to a legitimate commission business. JAMES S. TRIPP & CO.

Lombard-street Chambers, 33, Clement's-lane, City.—Established 1839.

## CHYPREASE CONSOLS TIN AND COPPER MINE,

ST. ENOCH, CORNWALL.

In 1924 shares, of £5 5s. per share.—Deposit £1 7s. 6d.

Applications for the remaining shares to be made to Mr. Thomas Lewis, No. 17, New Meeting-street, Birmingham, Purser to the Company, of whom every information can be obtained.

## BUSPARVO TIN AND COPPER MINE

NEAR CAMBORNE, CORNWALL.—In 7500 shares of £1 each, paid up.

This MINE has been working on a limited scale for some time, the operations being confined to the adit level, which has been driven 150 fathoms on the Lamba lode, and the copper ore produced, at only 12 fathoms depth, is so rich, that it realised £15 12s. per ton in August last. It is now proposed to raise the above capital, to extend the workings, erect engines, and bring the mine into an efficient state.

Application for the remaining shares to be made to the Committee of Management, at the office, 26, Austinfriars, where prospectuses may be obtained.

## CWMYDLE ROCK AND GREEN LAKE COPPER MINING COMPANY.

CONDUCTED ON THE COST-BOOK PRINCIPLE.

SHAREHOLDERS NOT LIABLE BEYOND THE AMOUNT OF THEIR SHARES.

Capital £30,000, in 10,000 shares, of £3 each.

6000 paid-up shares, carrying interest of 6 per cent. upon £2 per share, the remaining £1 to take the dividends from the working of the mine.

4000 deposit of £1 paid, and no further call likely to be made.

The above shares have all been subscribed for, and the mine will be in full activity, by being worked upon an extensive scale, so soon as the smelting and refining houses are erected, which will be commenced immediately.

The Committee of Management have been engaged in testing the value of the minerals produced from the mine, and have the satisfaction in being able to state, that the result has been perfectly satisfactory, as they find that the minerals not only produce from 15 to 30 per cent. from their inferior samples, and from those of a superior quality 30 to 60, not only fine copper, but a small per centage of gold and silver.

Offices, 2, Scott's-yard, Bush-lane, Cannon-street, City.

## WHEAL TREWANE (SILVER-LEAD),

SAINT KEW, CORNWALL.

CONDUCTED ON THE COST-BOOK PRINCIPLE.

In 8448 shares, of £1 5s. per share.

COMMITTEE OF MANAGEMENT.

PIERCE SOMERSET BUTLER, Esq., M.P.

SIR CHARLES KIRKPATRICK, Bart.

RICHARD WOODTHORPE, Esq., F.R.S.

WILLIAM DUNBAR, Esq.

JAMES HAYNES HAYNES, Esq.

BANKERS—Messrs. Masterman, Peters, & Co.

PURSER—Mr. A. Elborough.

OFFICES.—No. 12, OLD JEWRY CHAMBERS.

Applications for shares may be made to Mr. A. Elborough, at the offices of the company, 12, Old Jewry Chambers, City; or to the following stock and sharebrokers:—

Messrs. Ratton and Wood, No. 1, Crown-court, Threadneedle-street; James Lane, Esq., 52, Threadneedle-street; Isaac Fletcher, Esq., Liverpool; Robert Massey, Esq., No. 6, Temple-street, Birmingham; Messrs. T. and W. Flint, Hull; Messrs. Hughson and Dobson, Edinburgh;—where prospectuses, with forms of application for shares, and reports on the mine may be obtained, and specimens of the ores seen.

## WEST WHEAL GRENVILLE COPPER AND TIN MINE,

CROWAN, AMBORNE, CORNWALL.

Held under a lease from the Rev. Hender Moleworth St. Aubyn, for 21 years, from the 31st March, 1851, at 1-20th duty.

NOW BEING WORKED ON THE COST-BOOK SYSTEM.

In 6000 shares.

A moiety will be carried on by the present proprietors.—A call has been made on the whole of the shares, the amount of which will cover the entire cost of engine, machinery, and all erections necessary for fully working the mine: 8000 shares only will, therefore, be disposed of to unexceptionable parties at £1 per share, inclusive of the call.

COMMITTEE.

HENRY BENNETT, Esq., 9, Spring-gardens.

JAMES SYDNEY CROCKER, Esq., Norfolk-road, St. John's Wood.

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GEORGE LEDWELL, TAYLOR, Esq., Hyde park-square.

THOMAS HARVEY, Esq., Great St. Helen's.

BANKERS—Messrs. Barnett, Hoares, and Co.

MANAGING AGENT—Capt. Joseph Vivian, North Rocks.

OFFICES.—29, GREAT ST. HELEN'S, LONDON.

The importance of this mineral property is so obvious, that little need be said of it beyond the statements contained in the annexed reports.

The site is very extensive, being upwards



## THE MINING SHARE LIST.

Shares.	Mines.	Paid.	Dividends per Share Declared.	Last Paid.	Last Price.	Present Price.
1130	Alfred Consols (copper), Phillack	3	£ 1 19 to 1st Oct.	£ 0 6 Oct.	134	13 13
1248	Alli-y-Crib (silver-lead), Tal-y-bont, Wales	—	0 7 6 to Oct.	0 5 0	7 1/2	6 7
1624	Bailiswidden (tin), St. Just	11 1/2	9 2 to Oct.	0 7 to Oct.	10	—
4000	Bedford United (copper), Tavistock Devon	2 1/2	3 0 to Oct.	0 4 to Oct.	7 1/2	7 1/2
64	Boscawell Downs (tin), St. Just	18 1/2	750 0 to May, 1849	—	100	—
1000	Botalack (tin and copper), St. Just	2 1/2	40 0 to 5th April	5 0 to May	300	215 230
1000	Bryntall, Llanidloes, Montgomeryshire	2 1/2	6 0 to end June	0 5 to June	14	—
1000	Callington (lead and copper), Callington, Devon	29	6 0 to Sept., 1847	—	—	—
4000	Calstock United (copper)	2 1/2	0 5 to Oct., 1851	0 5 to Oct.	5 1/2	6 6 1/2
1000	Carn Brea (copper and tin), Illogan	15	206 0 to Sept. 1851	2 0 to Sept.	95	—
256	Comford (copper), Gwennap, Cornwall	70	—	—	20 1/2	—
256	Condarrow (copper and tin), Camborne, Cornwall	20	13 0 to Oct. 1851	2 0 to Oct.	105 105	—
1024	Cwmystwith (lead), Cardiganshire	60	—	—	110	—
1024	Devon Great Consols (copper), Tavistock	1	2 10 to Sept.	5 0 to Sept.	283 375	—
150	Dolcoath (copper and tin), Camborne	252	853 14 to 1847	—	25	—
124	East Pool (tin and copper), Pool, Illogan, Cornwall	2 1/2	233 0 to 1843	—	135	120
98	East Wheal Crofty (copper), Illogan, Cornwall	125	242 10	—	150	—
124	East Wheal Rose (silver-lead), Newlyn	50	2227 10 to 5th Sept.	12 10 to Sept.	450	—
494	Fowey Consols (copper), Tywardreath	40	—	—	30	—
3750	General Mining Company for Ireland (copper)	1 1/2	35 per cent. to June	10 per cent. to year	5 1/2	—
100	Goginan (lead), Cardiganshire, Wales	5	440 0	—	150	—
96	Great Consols (copper), Gwennap, Cornwall	1000	353 6 8 to January	0 2 to Sept.	300	—
10000	Great Colgoth (tin), St. Austell	3	115 0 to Sept.	0 2 to Sept.	3	—
110	Great Work (tin), Gernoe	100	0 7 6 to Aug.	0 3 6 to Aug.	4 1/2	—
1024	Herodasfoot (lead), near Liskeard, Cornwall	8	25 0 to Feb., 1844	Feb., 1844	12 1/2	—
1000	Holmehush (lead and copper), Callington	24	0 5 to Sept.	0 5 to Sept.	4 1/2	—
786	Kirkcudbrightshire (lead), Kirkcudbright	9 1/2	2 0 to 1st Aug.	0 10 to Aug.	19	—
1000	Lewis (tin and copper), St. Erth	17	1032 0 to 5th Sept.	2 0 to Sept.	150	—
160	Levant (copper and tin), St. Just	2 1/2	640 0 to 1st Aug.	20 0 to Aug. 1	700	—
1000	Liaburne (lead), Cardiganshire, Wales	75	0 6 to July	0 4 6 to July 1	10	—
5000	Low's Patent Copper Smelting Company	9	7 10 to Feb., 1847	7 p. cent. p. annum	5 1/2	5 1/2
90000	Mining Company of Ireland (copper, lead, and coal)	7	235 0 to 1st Nov.	6 0 to Sept.	192 1/2	—
200	North Pool (copper and tin), Pool	22 1/2	226 0 to ditto	—	10	—
140	North Rosebar (copper), Camborne	10	1 1 to 5th April	—	650	—
6000	North Wheal Bassett (copper and tin)	—	1 15 to June	0 10 to 4th June	40	—
128	Parr Consols (copper), St. Blazey	55 1/2	10 0 to March 5	5 0 to March	240	—
1160	Perran St. George (copper and tin)	21 1/2	18 4 6 to Aug.	0 15 to Aug.	25	—
200	Phoenix (copper and tin), Linkinghorne	30	235 0 to July	2 10 to July	120	—
800	Providence Mines (tin) Uny Lelant	20 1/2	101 15 to Sept.	6 0 to Sept.	200	170 180
256	South Caradon (copper), St. Cleer	2 1/2	3 10 0 to Sept.	0 2 6 to Sept.	10	9 1/2
256	South Trelawny (copper), Redruth, Cornwall	16	859 0 to Aug.	4 0 to Aug.	100	—
248	South Wheal Frances (copper), Illogan	80	11 10	10 12	—	—
1234	Sparnac Consols (tin), St. Just, Cornwall	1 1/2	27 15 to Sept.	1 0 to Sept.	13 1/2	6 1/2
94	St. Ives Consols (tin), St. Ives	80	109 0 to 1st Oct.	12 10 to Oct.	50	—
1000	Stray Park and Camborne Vein (copper), Cornwall	15	2331 10 to Aug.	6 0 to Aug.	130	—
9600	Tamar Consols (silver-lead), Beeralston	4	1 0 to July	0 5 to July	10	8 10
6000	Tincroft (copper and tin), near Pool	7	8 0 to 8th Sept.	2 0 to Sept.	31	31 32
256	Trehane (silver-lead), Menheniot	1 1/2	187 0 to Aug.	5 0 to Aug.	150	—
5000	Trelisgh Consols (copper), Redruth	30	21 5 to 21st Aug.	3 0 to Aug.	56 1/2	56
924	Trevelyan (copper), Gwennap, Cornwall	5	27 10 to August	2 10 to Aug.	280	—
120	Trevelyan and Barriar (copper), Gwennap	130	199 10 to 6th Oct.	5 0 to Oct.	200	—
300	United Mines (copper), Gwennap	80	25 10	2 0 to May	39 1/2	39 40 38
1024	Wellington (copper and tin), Perranuthnoe	6 1/2	6 15 to Oct.	0 15 to Oct.	26	26 25 1/2
256	West Caradon (copper), Liskeard, Cornwall	20	313 per cent. Aug	15 p. cent. end Aug.	28 1/2	—
812	West Providence (tin), St. Erth	10	—	—	—	—
356	Wheal Bassett (copper), Illogan	10 1/2	—	—	—	—
356	Wheal Brea (copper), Gwennap, Cornwall	5	—	—	—	—
356	Wheal Buller (copper), Redruth	5	—	—	—	—
134	Wh. Castle and Howesden (tin & copper)	5	—	—	—	—
126	Wheal Friendship (copper) Devon	120	—	—	—	—
5000	Wheal Golden Consols (silver-lead), Perranabuloe	3	—	—	—	—
430	Wheal Lovell (tin), Helston	3	—	—	—	—
112	Wheal Margaret (tin), Uny Lelant	79	—	—	—	—
512	Wheal Mary Ann (lead), Menheniot	2	—	—	—	—
40	Wheal Orville, St. Just, Cornwall	300	—	—	—	—
240	Wheal Roath (tin), Uny Lelant	90	—	—	—	—
198	Wheal Seton (tin and copper), Camborne, Cornwall	107	—	—	—	—
520	Wheal Trelawny (silver-lead), Liskeard, Cornwall	3 1/2	—	—	—	—
1024	Wheal Tremayne (tin and cop.), Gwennap, Cornwall	9 1/2	—	—	—	—
5000	Wicklow (copper), Wicklow	5	—	—	—	—

## FOREIGN MINES.

Alcan Mining Company (copper), Norway				14 1/2	3	0	to Mar., 1848	2		
Brazilian Imperial (gold), Brazil				24 1/2	3	17	6	to Dec., 1844	—	2 1/2
Colbre Copper Company (copper), Cuba				40	45	12	0	to June 1851	37. to June	33 1/2
Copiapu Mining Company (copper), Chile				14	3	13	0	to Oct., 1850	38. to Oct., 1850	5 1/2
General Mining Association (iron & coal), Nova Scotia				20	6	10	0	to June, 1851	10a. June, 1851	12
Marmato (gold), Colombia				20	2	0	0	to June, 1851	17. to June, 1851	7
Mexican Consols (silver), Mexico				59 1/2	0	8	6	end of 1846	4a. In 1846	—
Royal Santiago (copper), Cuba				10	32	0	0	to July, 1846	—	3 1/2
St. John del Rey (gold), Brazil				15	12	7	6	to Dec., 1850	17. 10a. to June 1	20 1/2
United Mexican (silver), Mexico				28 1/2	1	12	6	to Feb., 1850	7a. 6d. to Feb., 1850	2 1/2
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